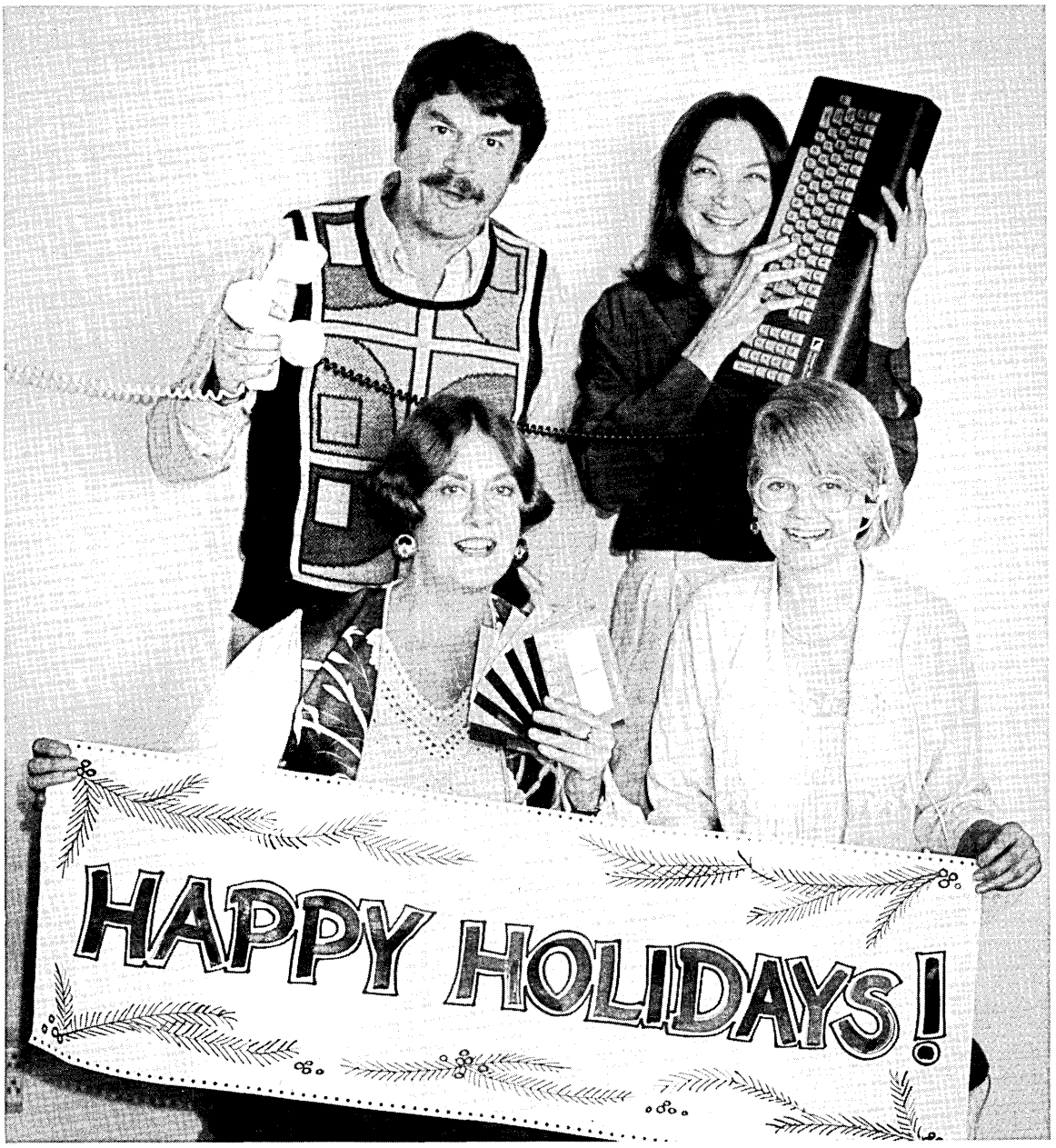
Morrow Owners' Review

VOLUME 1, NUMBER 5, DECEMBER 1984



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Morrow Owners' Review

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EDITORIAL

by Sypko Andreae

Support through networks.

The issue of proper support for the Morrow user is still a central one. From reading the previous four copies of the Morrow Owners' Review (just call us MOR) you by now know all about the circumstances that Morrow Inc., the dealers and the users find themselves in. The major lesson learned is that we, the owners of Micro Decision (MD) computers, are largely on our own.

While those previous issues analyzed the situation, in this issue we are dedicating considerable space to making you aware of what sort of support for the Morrow user is already in place and what is still in the works. We have seen the emergence of many local users groups and newsletters across the country. But these take care of only about 5% of all Micro Decision owners. For most, support is still poor, and Morrow and its dealers are clearly not able to improve the situation by themselves. So, it is up to us to create networks of support for MD users and then invite Morrow to join us in the further development and nourishing of those efforts.

Every Friday evening, Morrow owners all over the country get together on the CompuServe Conference. Several people from Morrow, Inc. occasionally visit us there. That is your chance to make personal contact from wherever you are. In early October George Morrow appeared; on page 13 of this issue is the edited transcript of that evening's tele-conversation. So, if you have a modem and subscribe to CompuServe, join us on Friday nights at 10 PM EST; at any ! prompt, GO PCS-47. You will learn a lot and have fun to boot.

Our bimonthly MOR--as you regular readers will notice--improves itself with every issue, thanks to a dedicated group of article writers, which is getting larger and more talented each month. First there were only the four self-appointed editors. Then a small production staff came into being. And now the original editors have been joined by a group of "meticulous readers" (article reviewers) and policy advisers to form a nationwide MOR council. We communicate mainly through MCI Mail. It's been a lively correspondence, and Stan Young's article on page 9 is one bright outcome.

We want to unabashedly recommend to you that you get a modem, learn how to use it, and get on-line with the world. Sure, it will take a little money and effort, but it will amaze you how much you will receive in return in the form of free advice and assistance, news, new friends and connections, and even free software. You'll find many articles in the coming MOR issues to

help you get going.

This form of communication is not only useful, it is also fun. Recently, I wanted to check out a list of new Morrow-oriented Remote Bulletin Board Systems (RBBSs). Now, some of these boards are very popular and their single phone line access can make it hard to get into them during prime time. I waited until the wee hours of the morning to pay my visits, hoping that everyone else would be asleep. Thus I spent several hours zipping across the nation, dropping in and sniffing around, leaving messages and moving on again to the next RBBS with the speed of light. I felt like a body-free spirit on a racy tour of sleepy robots, lightly manipulating their dreams....

Who is the staff?

Alright, we'll come out of the closet and show our faces right on the front cover. Hi! We are the staff of the Morrow Owners' Review. Let me introduce ourselves. From left to right, standing is your editor Sypko Andreae next to Shoshana Tembeck, and sitting in front are Augusta Lucas-Andreae and Dana Gaskin.

All the BAMDUA members know Dana who works full time in the MOR/BAMDUA office in Berkeley. She divides her time about equally between BAMDUA and MOR and is the one most likely to talk to you on the phone. Dana's day is filled to the brim with a diversity of activities, all of which she fulfills with great dedication and enthusiasm--administration, layout, advertising, dealing with lots of people, occasionally holding the hand of a distressed novice who's called for help....

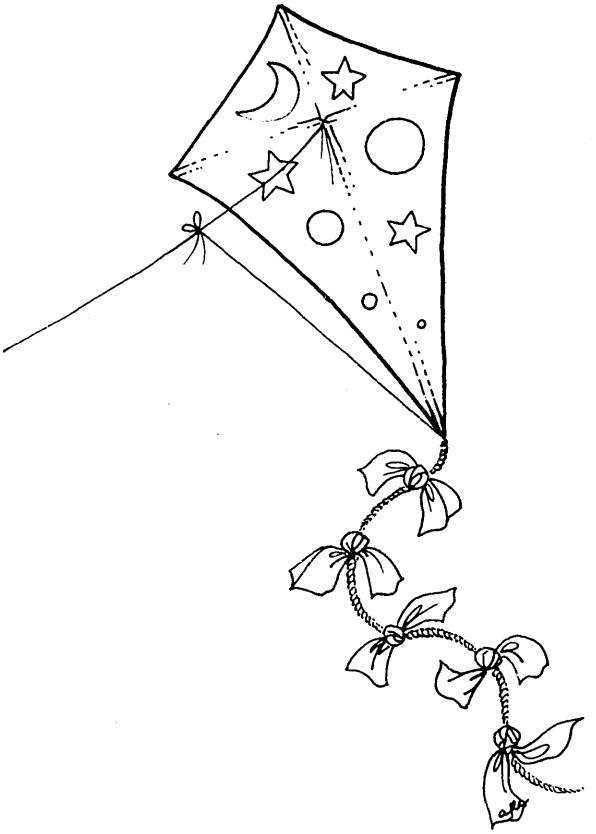
Most of the editing, rewriting and proofreading is done by Shoshana who has lots of experience in media and publications. She doesn't know much about computers, though. And that's great, because she unfailingly points out where our article writers slip into incomprehensible computerese as well as unrecognizable English grammar. She loves to proclaim how amazing it is to be rewarded for incompetence in the computer field.

The credit for the improving good looks of MOR goes largely to Augusta who takes care of all the graphics aspects of MOR, from page and cover design to all those little pictures of thunder-struck computer users. Augusta has been an artist all her life. Just like me, she grew up in Holland. We have known each other all along and, by sheer coincidence, wound up in the same town in California. In fact, she is my sister.

Both Shoshana and Augusta work part-time for MOR, mainly during the two-week production period. Otherwise, they are involved in a bewildering number of other pursuits.

As for your publisher/editor? I used to work full time at a local research lab as a computer scientist but cut that back to half-time when I started MOR in close cooperation with Morrow's Ed Niehaus. Ed is in great part responsible for the solid support Morrow threw behind MOR right from the beginning. At that time, a half a year ago, John Seamster of Morrow pointed out, "You're gonna learn a million things real fast!" Was he ever right. Overwhelming at times, putting out MOR has been mostly a lot of fun, and I have been especially enjoying the new people I have met, both in the large user community and at Morrow. That alone has been reward enough.

The most exciting part for me, however, is to watch MOR slowly taking on a life of its own, developing into a better and better communications vehicle for thousands. When I was a kid, I loved flying kites--beautiful, colorful ones that I made to fly higher and higher. Well, I love developing MOR. It is even better than flying kites....



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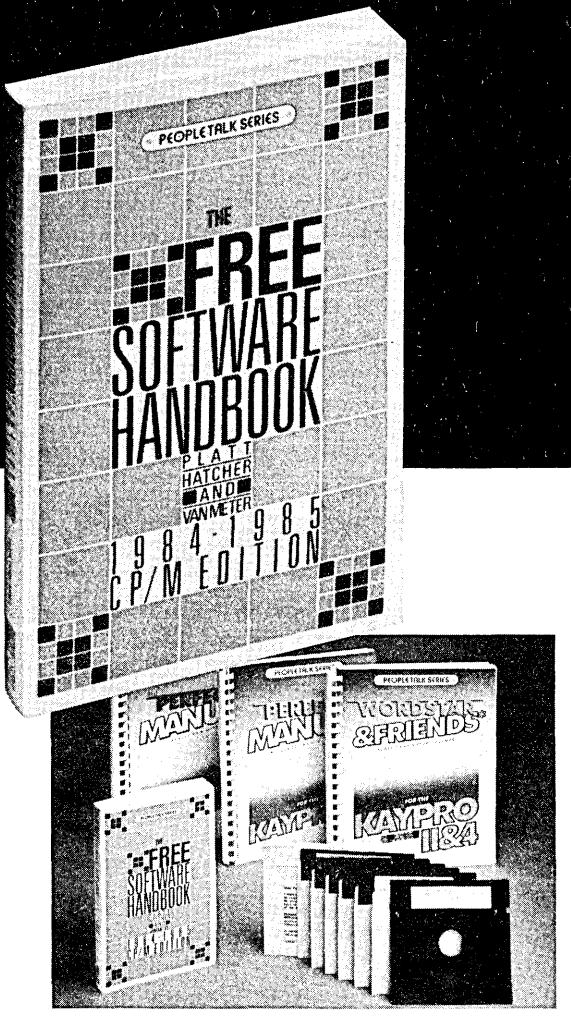

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LETTERS TO THE EDITOR

CURBSTONE PHILOSOPHER TROOPS ON

Dear Editor:

Thanks for your efforts on the Review. I now feel more firmly than ever that I got a bargain I didn't fully appreciate at the time I bought my Morrow (an MD2) a year ago. I gather the MD2 is being superseded by more capable machines by Morrow, but it's still yards ahead of me.

I'd like to recommend to others in my novice category the Micro Cornucopia series of public domain software and also the Free Software Handbook and disks from PeopleTalk as worth well more than the asking price--in particular, the ZCPR system on Micro Cornucopia disk #9.

I'm just beginning to explore and appreciate what this machine will do, and CP/M is definitely not dead any more than classical literature or music. One's ability to use it and take advantage of all the work done with it is like the difference between being able to read and write as opposed to taking what's excreted on TV. As a ham radio operator, surgeon, and curbstone philosopher, I'm not content to be only an appliance operator. "User-friendly"? "User-convenient" or "Dummy-friendly" would be more like it for the new sales-oriented computer generation.

Thanks and keep charging. We troops are still with you.

Jesse Adams, Olga, WA

KNUCKLE-RAP TO KNUCKLE DOWN

Dear Editor:

The Morrow Owners' Review is a first-rate piece of work, early BAMDUA reprints and all; you and Morrow are to be congratulated, and you should take carping about journalistic standards lightly. Since the function of MOR is to get useful information out to Morrow owners, you should work closely with Morrow and other manufacturers.

I continue to be amazed at the number of people who buy a Morrow, one of the lowest-price complete business systems around, and then seem to expect:

1. That the system will "do something for them" without any work on their part;

2. That you can use a business-oriented microcomputer system without cracking the manuals or spending some time learning how;

3. That a $2000 purchase entitles you to $3000 worth of free consulting.

For that matter, do these people really believe that they could call either Apple or IBM directly and expect to be hand-held through all their problems? Fat chance! But somehow a smaller manufacturer offering twice the value is expected to bankrupt itself taking care of people, many of whom should really not have purchased a computer in the first place.

Walt Crawford, Menlo Park, CA

QUICK DEALER

Dear Editor:

Just a quick note from a Morrow dealer to let you know that we exist and love the MOR. You probably don't hear from us because we are all busy.

Cooperation between newsletter and Morrow seems to be working well for all parties concerned. It is something good to build on.

I would also like to think that I could trust the reliability of the products advertised, so I hope you have some way of being selective.

Reprints of articles that are helpful to all are part of the MOR responsibility.

Just wish they all had the same color cover--I think it looks more professional.

You're doing a great job!

Marge, Florissant, Missouri

[Thank you for writing! For months we have been hoping to hear from a dealer. As for the color of the cover: We do like variety. Besides, we are users, publishing a newsletter, and we don't call ourselves professionals. Don't you think we'll get away with it?]

EUREKA!

Dear Editor:

I have recently received my first issue of the Morrow Owners' Review--Volume 1, Number 3, August 1984. My dealer said he did not put my name on your mailing list. I thank the person who did.

As a novice who is infatuated with his MD2 but has a

gross dislike for the indifferent attitude of the Morrow organization, the Review is just what I have been looking for.

Marshall J. Loftus, Colorado Springs, CO

[You probably got on the mailing list because your dealer mailed in your warranty card for you. That is one way to get on the MOR mailing list. About Morrow's supposed indifference: They have paid quite a bit of attention to several local user groups; they support MOR by paying the printing and mailing bill. Clearly, they are very supportive of the Morrow user movement. That Morrow cannot reach out to 40,000 customers directly is not necessarily related to indifference.]

SPECIFIC SPACING FOR SPELUNKERS

Dear Editor:

Your publication has already been a big help to me. The only problem I've found with my computer is a singing sound in the MDT 60 keyboard. Maybe the speaker is faulty. I hope to get this fixed before the warranty is up. The MD3 is certainly a bargain for those of us who do serious wordprocessing and database management on a low budget.

Two other friends here in Austin are using Morrows, and we all have a mutual interest in producing speleological publications. Eventually I will be doing book-quality typesetting with my Diablo 620, after I get my software patched to do justified proportional spacing. Karl Fuss's article in number 2 on proportional spacing with WordStar was interesting, but when I tried it with my Diablo 620 the capitals were terribly crowded, and the other spacing wasn't so hot. I would like to be in touch with others who are trying to produce typeset material with their Morrows.

William R. Elliot, Austin, TX

[As Dick Baker will point out in his article on proportional spacing with WordStar in the February '85 issue, WordStar has inherent limitations and can never provide you with a real "typeset" look. If that is what you need, look into software to augment WordStar as advertised in this and previous issues.]

NICE GOING

Dear Editor:

I really hesitate to write this letter. I just know things will be worse now. The problem, you see, is that I am getting two copies of your magazine, about four days apart. The mailing labels are exactly the same. I like your magazine, and I like getting it for nothing even better. I thought if I could save you a little money by eliminating this needless duplication, I could delay somewhat that inevitable day when you come to me with your hand out.

Now I expect you to go through your files and excise the duplicate listing, and then I will get nothing at all every other month. Please try not to do this to me, okay. I mean, I probably will subscribe to the Review when that time rolls around. Be nice, okay?

Gerry L. Turner, Quincy, IL

NOT SO SMART

Dear Editor:

I realize this is probably a nit-pick, but I wish Dave Block would refrain from using demeaning names like I feel he did in his October 1984 Q & A column. I refer to "Hard-of-Hearing, Not-so-Smart and Datastuck." Most folks could use the reassurance that the folks at Morrow are compassionate and caring, and not insensitive to the confusion of the novice.

Stan Ahalt, Clemson, SC

MORE MOR

Dear Editor:

I've been intending since your first issue to write you a bit of praise for filling the real need for Morrow information out here in the hinterlands. My wife (another budding lawyer) and I have been completely happy with our MD2, except for the difficulty finding answers to the occasional puzzles that arise (e.g.: what happened to the @ function in LogiCalc, can I speed up WordStar, is Morrow still in business, does anyone make dust covers for these things?) Especially since two friends bought Morrows on my advice, it's comforting to see evidence of a vigorous users group, and to learn some of the answers. Obviously I've really enjoyed your first two issues and am counting on more.

Next, I missed (years of training) your call for contributions in the first issue. MOR is a lot more helpful to me than most of my other subscriptions, so enclosed is a check to help keep it coming.

One last thought. As a group, I suspect Morrow users are a bit more independent than most, and if not more electronically sophisticated, then at least more willing to poke around in the innards of our programs and machines. So keep offering those fairly technical features on customizing and trouble-shooting our systems.

Chris Eidal, Federal Way, WA

[Sorry you missed our Call for Contributions in the first MOR issue (April 1984, page 33). Otherwise, you could have been a Stapler member, T-square supporter, Light box sponsor or even an Answering machine sustainer right from the beginning. No matter, you

have joined this most distinguished community a little later. Thank you and be welcome! To all of you who missed the call and have not made the proper response yet: It is not too late! Just make sure that the dollar amount of your gift is divisible by twelve.]

THE INDEPENDENT TICKET

Dear Editor:

In response to your August editorial, I vote YES. I think you should aim for financial independence, take an aggressive approach with advertisers and charge for subscriptions. (Please, no applause or eggs). Though I appreciate the subtleties of your dilemma, I think you can have your cake and eat it too.

Let's suppose that you opt to go it on your own. Naturally, that leaves advertisers and readers footing the bill. Then what? Here's what I think would happen:

* Logically, if advertisers are pleased with results, they'll stampede your office with new ads. Great! That's more for MOR.

* Lose one-third of your readership? Baloney! Morrow owners are a different breed. Don't forget that each of us, in turn, swam against the tide. And most of us, I'll wager, are still paddling hard. I don't know anyone who would balk at paying "average" magazine rates to learn everything there is to know.

* To keep open lines with Morrow and satisfy those concerned with biased opinions and over-exposure to the man himself, why not assign a MOR staff writer to cover new product information, sneak previews and inside scoops. Too, occasional interviews with Morrow's other personnel might lend extra insight.

* As for letting go of your "desire to reach every possible Morrow user," that's an easy one. Try field-testing a "freebie" offer (post paid subscription card) with each system sold. Buyers (or dealers) can return the card to you, and new owners will automatically receive the current MOR. Then, offer "introductory rates" to those who follow up with paid subscriptions. This is standard with many computer publications and it seems to work.

No matter which direction you lean, you have my support. I asked about a newsletter the minute I bought my system (13 months ago) and for a while considered publishing one myself.

Thanks and keep up the good work!

Barbara Stein, San Diego Enthusiast

WHAT'S WRONG WITH THIS PICTURE?

Dear Editor:

Your cover picture on the October issue... As a picture, and to a cat lover, it is delightful. As a computer owner, I was horrified. It reminds me of the pictures you see in puzzle magazines, captioned, "What is wrong with this scene?"

Have you ever had to clean up after a cat? Are you aware of the fall-out of cat hairs, grains of dirt, particles of skin that rain down from any high place where a cat sleeps? (I keep my own MD3 in a closed room where the cats are never allowed. It takes sufficient attention to clean up around the Blaupunkt, the high-fi, the TV, the stove top, and other high places where the cats like to settle.)

And then not one but three floppies sitting there without their protective jackets, where the cat can jump down onto them, or knock them down onto the floor where the dog or the babies can finish them. And the cup of coffee and pot sitting right there where the dog's tail can tip it over onto the keyboard. Is your artist a pet owner? If so, he (sic) doesn't have to clean up after them and keep them under control!

Gratia Jones, San Francisco, CA

[You are absolutely correct, and you are the first letter writer to express delight and horror at the same time. Yes, the artist does have a cat, but she doesn't know about computers. You know, we have been waiting for responses from our readers to our October cover. As a matter of fact, we'll give a prize to the Morrow user who can point out the most items in answer to the question, "What is wrong with this scene?" To qualify for the prize you have to be 12 years old or less. Spread the word!]

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USER SUPPORT — A PROPOSAL

by Stan Young

There's been a lot written in the MOR recently about end user support. A lot of folks aren't satisfied with the support they are getting. At the same time, they understand that Morrow has to do something besides answer questions if they expect to stay in business. Is there a solution to this dilemma? I think so. We could have our own Special Interest Group (SIG) on CompuServe--with Morrow's participation.

Let's take a quick look at the problems we have now and how a SIG might solve them. Then we'll take a look at what we would need to make it all work.

First, a couple of ground rules. I'm not interested in assessing blame. Each of the communities involved (the users, the dealers, and Morrow) have made contributions to the situation that we have now. I want to concentrate on solutions. I'll point out some of the problems that each group has created, but only in the context of finding a solution.

Second, while the views expressed here are mine, I'd like to take the opportunity to thank several people who have contributed much to the concept--the folks who participate in the Morrow Conference on Compuserve each Friday night. In particular, I'd like to thank Michael Conroy. He was one of the co-founders of the Online Conference (CO) and has contributed greatly to its success. In particular, he was instrumental in having George Morrow appear at a recent CO.

Now for a thumbnail sketch of the current situation. (Sorry if anyone gets their toes stepped on; I call 'em as I see 'em.)

The Morrow folks say that they get too many calls from end users to be able to answer them all. Let's face it, folks, they are right. Even if they only get one call from each user, that's a heck of a lot of calls. So they have done a number of things. First, they refer folks to their dealers, in order to limit the number of calls Morrow gets from end users. Second, they support MOR by paying printing and mailing costs as well as by contributing two columns. And third, they wrote a booklet that has answers to a lot of the most commonly asked questions. My impression is that the first move was unpopular, the second very popular, and a lot of folks don't even realize that the third item exists. (If you don't have yours, write Morrow.)

The dealers, on the other hand, are generally ill-equipped to provide much support. They can usually get a broken computer fixed and show you how to get started, but from there on, you'll be on your own. If you think about it, that is probably not an unreasonable approach. When you buy a car, they'll make sure that it works. And you'll be able to get the salesman to show you where the controls are. But you don't expect your auto dealer to teach you to drive. And you don't buy a Dodge body, a GM drivetrain, and expect your Ford dealer to install it in his chassis and make it all work. A lot of folks present a dealer with a printer and modem from somewhere else and expect him to get it all working.

Now for the users. First, if our computer doesn't work, we want someone to fix it. I think this area is well covered by both the dealers and Americare (a national repair organization run by Xerox for personal computer systems).

Information is another matter. Some of the information you want isn't readily available. You need to have some place to find it, preferably a single reference point.

Second, a lot of folks are looking for information in the form of tutorials on how to use their systems more effectively. Some folks want hints on using their word processors; others want to learn to program. For this, you need to interact with other people.

And, let's face it, a lot of users are lazy. Think about it. Have you ever called your dealer without REALLY looking through your manuals? It's a lot easier to have someone tell you how to do something. (Yeah, I agree that the manuals could be better--but literally thousands of folks not any brighter than you have managed to work with them. You can too.)

So the users band together in users groups, sharing their discoveries. All in all, users groups are very handy things to have around. But they have some limitations, too.

First, there is the matter of geography. A users group has to be close to you for it to do you much good. (Yeah, you do hear about folks driving 100 miles each way to attend a meeting, but they ARE the exception.) There may not even be any other Morrow users in your area. Worse yet, the geographic nature of these groups tends to limit the spread of ideas. It is astonishing how one area of the country may have some neat technique that "everybody" is using, but the same technique is virtually unknown in another part of the country.

Then there is the matter of time. You have to be there when the users group meets to derive much benefit from it. Some folks have to work or sleep during the meeting time.

So how's a SIG going to improve this situation? Let's take a quick look at how it is organized, and then we'll look at some things you might be able to do with it. If folks are interested, we'll do a tutorial on using a SIG.

Like any users group, a SIG is people--in our case, people interested in using Morrow computers. But it doesn't meet in a building. It meets in a computer.

Here's how it works. You start by calling a local Compuserve number and logging on to their computer system, just like you would call a local bulletin board system. Then you select the SIG that you want to visit. If you aren't a member, you'll be given the option of joining the SIG. At this point, there are several parts of the SIG that you can explore.

There is a reference section. Here our Morrow SIG would have things like common questions and answers, lists of places that sell software in Morrow format, and so forth--in other words, a lot of the "standard" material that dealers and Morrow get asked repeatedly. One of the advantages is that information in this form can be updated quickly. Indeed, it might even free up some folks at Morrow for more effective methods of support. We might even be able to upload newsletters from various local groups, if they are willing.

There is a message board. This is very similar to the message system on a bulletin board system, but it is much easier to use. You leave messages at your convenience, and folks answer as they get the chance. This is where you leave those questions that the reference material can't answer. It's also where you would share tips on using your system effectively. And in addition, you can use it to find local members interested in starting a local group.

This would make a great way for Morrow to keep in contact with end users without being swamped, because when they answer a question here, a lot of folks will see the answer. And if the information would be of interest to a lot of folks, we can add the information to the reference section.

There's also a section where we can upload and download files, so we can exchange public domain programs. Plain text files can be transferred without any problem. (Transfer of binary files, such as .COM files, need special care. That is the purpose of "protocols" in Modem software. Compuserve supports their own proprietary protocols and the Christensen [XMODEM] protocol.) As a matter of fact, there are already a number of Morrow specific public domain files on Compuserve, in the CP/M SIG.

And finally, there is the conference section. The conference section allows users who are on the system at the same time to "talk" to each other. It's sort of like a computer party line. This facility is used for informal chats, for scheduled group meetings, and every so often a guest speaker is featured. Several of us are already holding conferences on the CP/M SIG. We'd be able to move this activity to our own SIG.

So, how does it stack up? Well, it has the potential to allow better support from Morrow, without requiring significant additional resources. It leaves the dealers fixing the problems that they are supposed to fix. It might even provide a bit more profit to both of them, since someone will have to supply modems and software to those who aren't already equipped.

Another advantage is that it gives users a single source for the information they are looking for. The answer may be in the reference material. They might find it by "talking" to another user. Or they might even get a direct response from Morrow. They don't have to be near a users group, just near a telephone. And the group is open 24 hours a day.

Of course, there are some limitations. You have to have a modem and communications software to make this thing work. You have to subscribe to Compuserve. And Compuserve does have an hourly charge--currently $6.25 per hour for 300 BPS service during the evening. If that seems like a lot of money, consider that a consultant will charge $25 an hour and up. The $6.25 per hour begins to sound a lot better. And the service is billed on usage, so if you don't call in, you don't get charged.

As for the other problems, Morrow might be able to work out a modem/Compuserve package deal at very reasonable rates for those who haven't joined the ranks of the telecommunicators.

But as I indicated before, this is all a fantasy--so far. The elements are all there. But we'll have to put them together. What do we need to get started?

1. We need a commitment from Morrow to participate. We would want permission to upload much of their available reference material, like the question and answer book. And we'd like someone to stop by, say a couple of times a week, to handle questions that we can't resolve within the group.

2. We need an expression of interest from the user community. You'll need to consider this carefully. At the end of this article is a survey form. Please take the time to respond. I'll tabulate your responses, and we can be guided accordingly. Frankly, unless we hear from a thousand or more people who are interested, the project won't stand much of a chance of getting off the ground.

3. We need agreement from Compuserve to start a SIG. If we show that both Morrow and the users are committed, we should be able to handle this. If they are convinced that they will have a good market, they will do it.

4. We'll need some volunteers to help those who are new to telecommuncations get online.

5. Once this gets started, we'll need your participation. Upload your favorite public domain programs. Give someone a helping hand. Suggest speakers that you'd like to "meet" in a conference. List your interests in the user log. Participate.

OK, folks, that's one way to approach the problem. Comments? Please take a few moments to complete the survey form below, and mail it to me:
Stan Young, POB 8, Lilburn, GA 30247.

	CIRCLE ONE
1. Would you participate in a SIG like the one described in the article?	YES NO
2. Do you have a modem and communications software?	YES NO
3. Are you currently a Compuserve subscriber?	YES NO
4. If you don't have a modem, would you buy one to gain access to this SIG?	YES NO
5. Do you belong to a users group?	YES NO
6. Will you volunteer to help get on-line those who are new to telecommunications?	YES NO
7. Based on the information in the article, how many hours would you expect to use the SIG each month?	0 - 2 hours 3 - 5 hours 6 - 9 hours over 10 hours

Please indicate whether you agree or disagree.	AGREE				DISAGREE
8. Morrow's participation would be important to me.	5	4	3	2	1
9. I would like guest speakers at the conferences.	5	4	3	2	1
10. A public domain software library is important.	5	4	3	2	1
11. There is no local users group in my area.	5	4	3	2	1
12. Attending group meetings is inconvenient.	5	4	3	2	1
13. I am very enthusiastic about this idea.	5	4	3	2	1

14. Comments? _____

_____

_____

15. Name _____

Address _____

City _____ State ___ ZIP _____

Micro Cornucopia

The Single Board Systems Journal

MORROW USERS DISKS

Micro Cornucopia is drawing rave reviews as the technical journal with style, but Micro C, as we like to call it, is more than just a magazine.

Micro C is also a central exchange of software that people have written or modified for their systems and from these contributions we have put together the following Morrow disks (186K format).

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Bend, OR 97709

VISA

(503) 382-8048

Morrow Users Disks

$12.00 each

The following are full disks of software assembled specifically for the Morrow. Each program has a .DOC (documentation) file and many come with source.

Morrow Disk M1
Modem software

This disk is absolutely priceless if you will be using a modem to communicate with bulletin boards, other micros or mainframes.
MMODEM: Morrow version of MODEM 795. You can change your baud rate inside the program. Includes source and library so you can customize it if you wish.
SMODEM: This is MODEM7 setup for SMARTMODEM compatible modems. Handles autodial and autoanswer.
SQ/USQ: Programs to squeeze and unsqueeze files for faster transfer.

Morrow Disk M2
Utilities

Really oodles of spiffy little (and big) programs to help you get full use of your Morrow.
ZESOURCE.COM: A true Zilog format disassembler for 8080 and Z80 object(.COM) files. Now you can turn .COM files into . MAC files.
UNERA.COM: Simply enter "UNERA" followed by the name of the file you just erased and presto, the erased file is back! A lifesaver.
FINDBD54.COM: Checks an entire disk, reports bad sectors, and then creates a special file containing those sectors. You save a bundle on disks.
CAT2: This a group of programs which create and maintain a single directory of all the programs you have on all your disks. Even keeps track of which programs are backed up and which aren't.
DUMPX, DU-77, COMPARE, FORMFEED, DIR-DUMP,... and all have documentation on disk.

Morrow Disk M3
Games

PACMAN.COM: Despite the Morrow's lack of graphics, this one looks and plays amazingly like the real thing! Keep it hidden.
ZCHESS.COM: Chess with a 1-6 level look ahead.
OTHELLO.COM: You learn it in minutes, master it in years.
BIO.COM: Generates custom graphic biorhythm.
MM.COM: Master Mind.
WUMPUS.COM: Classic wumpus hunting.
ADVENTURE.COM: This is the famous 550 point super version of Adventure. There isn't room on one disk for this program and all the data files (the cave is huge) so the data files are on Disk M4.

Morrow Disk M4
Adventure Data & Aliens

ADVT.DAT: This disk contains the data files for the 550 point Adventure (the latest, greatest, most cussed version ever devised by half-mortals). You must have both M3 and M4 to play Adventure.
ALIENS: This is the game that made arcades famous. Keep this one hidden from the younger set or you won't get to play Adventure.

Morrow Disk M5
MX-80 Graphics

A complete Epson MX-80 graphics printer package including example files. Same as M6 except for MX-80 (or compatible) printers.

Morrow Disk M6
Prowriter Graphics

This is a complete Prowriter printer graphics package written by the same Micro C subscriber who wrote the MX-80 graphics package. Plot points, lines, circles, boxes, and more. Examples, documentation, and more.

Morrow Disk M7
Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's Small C compiler. Version 2 has more expressions and larger library, true subset of Unix C. Disk contains compiler, documentation, and library —everything you need.

Morrow Disk M8
Small C Version 2 Source

This disk contains the source (written in Small C) of the Small C version 2 compiler. Get M8 if you want to try extending the compiler. (You must have M7.)

Morrow Disk M9
ZCPR

ZCPR: The big news on this disk is the self-installing version ZCPR available only from Micro C. Once you have ZCPR in your CP/M, you'll never go back to straight CP/M! For instance, ZCPR searches drive A for any program not found on drive B, so, even an empty disk in drive B appears to contain every program on A. It's great for text editors, compilers, etc. Plus many more new features to make CP/M easier to live with. In fact, Digital Research incorporated many features of ZCPR into CP/M 3.0.
EX14: a super replacement for SUBMIT.

Morrow Disk M10
Assemblers

We've received a lot of requests for a Z80 assembler. So Dana put in some long hours getting the Crowe Z80 assembler to run on the Morrow (and every other Z80 machine).
CROWECPM: This is a first class Z80 assembler. We use this assembler daily (and we included its source). Takes standard Zilog mnemonics.
LASM: This is a more powerful version of the ASM assembler you received with the Morrow. This will link multiple programs together at assembly time.
PRINTPRN: This program makes it easy to print the listing files generated by the Crowe assembler.

Morrow Disk M11
Library & Checkbook Programs

CHECKS: This has been a very popular group of programs. Categorizes checks so you can keep track which are tax deductible and which get charged to which projects. Includes source and excellent example check files. Very powerful.
LIBR: This is a complete set of library routines which let you group files into a single file called a library. Then CP/M sees them as a single program, but with the library routines, you can list them out separately, run them separately, or divide them up again. Almost like a unix environment.

Morrow Disk M12
Pascal Compiler

This is a real Pascal compiler. It supports only a subset of the language (no records, pointers, booleans, reals or complex) but it generates a real .COM file. Everything is on this disk: the compiler, its source, example programs and documentation.

Morrow Disk M13
Z80 Tools

This is for those of you who are into Z80 assembly language.
XLATE.COM: A very good 8080 to Z80 translation routine.
DASM.COM: An easier to use version of ZZSOURCE (the Z80 disassembler). This full disk includes source and documentation for both routines.

NEW!

Morrow Disk M14
Z80 Macro Assembler

This is a real Z80 macro assembler! Syntax closely follows RMACK and MAC. Also includes pseudo-ops to support conditional assembly, etc. No phase or relocatable code.

GEORGE MORROW FACES THE NATION

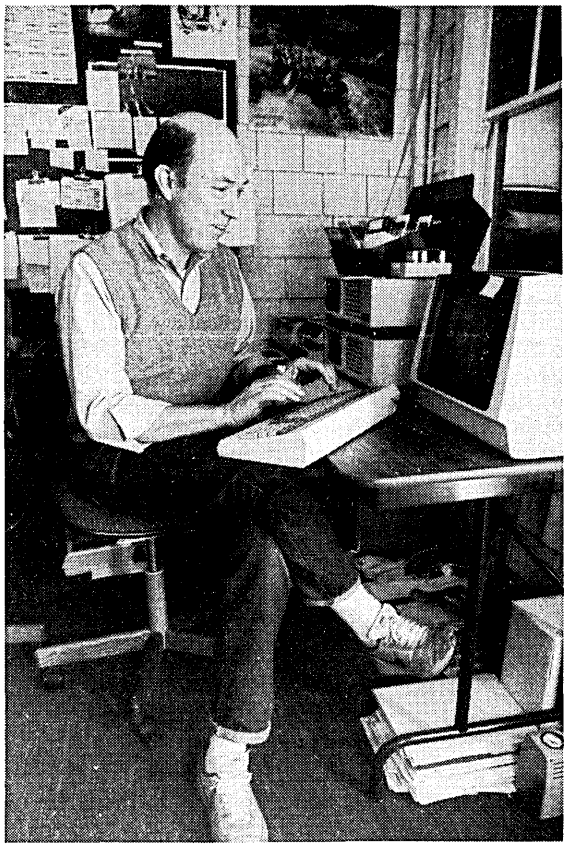
CompuServe Conference transcript edited by Michael Conroy

It was Friday night, October 5, 1984, and the Morrow Conference on CompuServe's CP/M Special Interest Group (or CP/M SIG) was all set to go at its usual time--10:00-11:00 p.m. EDT. But this evening there was something different. George Morrow had come to face the nation. The following is an edited transcript of that event.

Other Morrow Designs personnel participating in this conference were: David Block, Micro Decision Product Manager and Ed Niehaus, Director of Marketing Communications. They are semi-regulars in the Friday evening Morrow conferences on CP/M SIG, and you'll recognize their names as columnists for MOR. David dialed in from work while George and Ed hovered over the screen at Sypko Andreae's house. Sypko is president of BAMDUA, the Bay Area Micro Decision Users Association, and is editor of the Morrow Owners' Review. Moderator of the conference was Sysop David Kozinn. (Sysop = Systems Operator, an "official" with the CompuServe organization.)

(PeteH) He's here!
(Ed NIEHAUS) I'D LIKE TO INTRODUCE GEORGE MORROW
(sysop-chas) Welcome, and take it away David
(Sysop-Dave) Before we get started, I'd like to lay down some ground rules so that everyone gets their chance. I'm going to use what MAUG used when they have their big COs, and poll everyone who would like to speak. I'll record that list, then call on you one at a time. This way things are a little less confusing. Now, first, if Mr. Morrow has any opening comment, please go ahead, I'll poll for questions later. GA (GA is go ahead).
(Morrow Designs) Hello everybody i'm here at the request of the users group.
(Ed NIEHAUS) BY THE WAY--Morrow Designs is George
(Michael Conroy) George, do a /han and you can change your handle to your name.
Morrow Designs) Thank's Dave I've got no remarks - just here to gab and answer questions.
(Sysop-Dave) Ok then. Everyone else, if you have a question to ask, please indicate by typing a Q at this point. I'll then call everyone in order. GA
(GEORGE MORROW) Q
(Sysop-Dave) I'll start off with Matt Pericles. Go ahead Matt.
(Matt Pericles) Dave, take George first.
(Sysop-Dave) Go ahead George, you're exempt from this!
(GEORGE MORROW) Just a joke by someone looking over my shoulder. GA Matt.
(Sysop-Dave) <hee hee> Ok, Matt, you're up then. ga
(Matt Pericles) Ok, I was wondering what you see in the future for single user computers, beyond MS-DOS and the 8088.
(GEORGE MORROW) I think that the single user will be main stream with every one of them having a LAN connected to it. [LAN = Local Area Network --Ed.]
(Sysop-Dave) (George, please type GA when you are through so I know)
(GEORGE MORROW) GA
(Sysop-Dave) Ok. Mike Allen is next.
(Mike Allen) Thanks. How can I get a listing of the MD3 rom or at least a description of the entry points and the functions supplied in the rom. Also would it be possible to get schematics for under $150!!! ga
(GEORGE MORROW) I should have Ed answer this one GA
(Ed NIEHAUS) Write me at Morrow with address and serial #. ga
(Sysop-Dave) Thanks Ed. Stan Young is next. Ga
(Stan Young) George, while the MD series may not be the most "fashionable" system around these days, without MS-DOS and IBM compatibility, it does everything a lot of us need and then some, at a good value. (Sort of like a Volkswagen.) Can you give us some idea how long you think it will be sold? ga
(GEORGE MORROW) The software world is moving more and more to the 8088/IBM PC type machine everyday and for that reason all of us must move in that direction in the long run. The difficulty is that the IBM PC hardware is not cheap to do which drives the cost of these machines up. However all is not lost because even IBM does not want to be tied to the old hardware. They are in the process of forcing the software vendors to not make the hardware calls that have been so prevalent in the past. When this software dependence on the hardware goes away (somewhere in the next 9 to 18 months) it will be possible to optimize the hardware for cost and system performance. There is always the possibility however that 32 bits will be upon us before this changeover (hardware independent software) happens. In this event we could be in for another round of the same cycle that we've just been through with the IBM PC dependent software. In that event I hope that you users form lynch mobs and do the proper thing to those who are responsible for the present (and future?) state of affairs. GA
(Stan Young) Thanks. Anyone got a rope? GA
(Gary Novosielski) Amen.
(Sysop-Dave) Thanks George. Ok, next up is Mike Conroy. GA
(Michael Conroy) I think there is still a sizable market for a VW (quoting Stan) type machine. The MD series has been steadily improving but unfortunately has seemed to not get the attention that Kaypro has gotten. Would you like to outline your plans for remedying that situation such as the new price cuts on the MD3 and MD3P?
(GEORGE MORROW) Understand that Kaypro was one of the first to recognize that there was merit in the Osborne bundled portable type computer for less than $2000. They were about 10 months (I think) ahead of us. Also,

its fair to say that I still do not completely understand the market effects of a handle on a computer. For these reasons (and perhaps a little help of some cash from their public offering) I think that presently they have quite a bit more visibility than we do. Price cuts of course can help but I think that the new portable Pivot will have more effect on our overall image than any short term strategy with the MD series. Until I feel that I can make a 16 bit product as cheap and do as much as the 8 bit stuff, I'll probably keep trying to do a better job with the 8 bit stuff. One thing that I'm toying with now (I haven't even talked to marketing about it yet) is a $500 one drive portable 8 bit machine (CP/M) that would fold up like a book that you could carry around under your arm with a printer and modem port (25 line display) GA
(Ed NIEHAUS) We'll sell it George. ga
(sysop-chas) We'll buy it!
(Michael Conroy) Sort of like a cross between a Pivot and a Geneva!
(Stan Young) George - please give it a ramdisk too!
(Sysop-Dave) (If you need any Beta testers...) Anyway, Charles D'Englere is next.
(Charles D'Englere) Thanks, Dave. Mr Morrow, why did you change your stand on a 68000 based system as well as going to UNIX? <GA>
(GEORGE MORROW) Originally I thought that a multi-user system would not be CPU bound (only I/O bound). Hence the use (in the first Decision I) of a Z-80. After it became clear that more processing power was necessary, I let myself be talked into using the 68000 processor



which I still think is redundant (from the instruction set point of view) GA
(Sysop-Dave) Thank you. Robert Parker is next.
(Sysop-Dave) GA
(GEORGE MORROW) He must have gone to sleep at my sparkling answers. GA
(Andy Adler) George, will there ever be a change in Morrow, Inc.'s stated policy of declining to help end-users who phone the company direct? Can Morrow really rely on its dealer network to supply technical support?
(GEORGE MORROW) We are thinking of ways we can improve our end user support but we don't want to get in a position of not being able to have sales calls coming in. I myself love to answer end user questions but have been told about the problem of clogging the sales calls if everybody were to be talking to end users. By the way, they'll talk forever just to be in touch with somebody who is also using a computer and who knows something about them. I've had calls that I just couldn't terminate unless I hung up on the person which so far I haven't quite had to do.
(Andy Adler) (And do you really have a 30,000 record jazz collection??)GA
(GEORGE MORROW) YES I DO HAVE A RECORD COLLECTION OF ABOUT 30,000 78 RECORDS FROM ABOUT 1900 TO 1935; a pastime that I'm addicted to. GA
(Sysop-Dave) Charlie Strom is next.
(sysop-chas) Thanks, Dave. First I would like to thank George for coming by tonight.
(Stan Young) Amen!
(Gary Novosielski) <applause>
(david e. allen) Here here!
(GEORGE MORROW) Thanks for having me .. I'd like to do it again soon GA
(sysop-chas) Also, I understand George is planning only an hour, so we may want to give him an opportunity for leaving shortly to listen to some of those records... a real quickie though- any chance you will get interested in DRI's CCPM 4.0? ga
(GEORGE MORROW) I'm not sure about that one. CP/M 3.0 hasn't been the success that I expected it to be. By the way .. I can't listen to any records until I finish the redesign of our Pivot so that when 25 line displays become available, we'll be able to use them in our machines GA
(Sysop-Dave) Ok, we're nearly done now. David Block, did you have a question?
(David Block) George---I got some ROMs that finally work for PIVOT.
(GEORGE MORROW) GREAT DAVE.
(Sysop-Dave) Ok David. Orcmid, you're up.
(orcmid) Two parter coming: 1. Considering that the MD series is so tightly bundled, have you noticed a lack of independently-developed software that takes advantage of advanced features more customized (and relatively impenetrable). 2. If that's so, is there some way you can open the kimono for us independent developers who would be happy to make our products sparkle on the MD's if we could get the necessary information easily. ga
(GEORGE MORROW) I sure hope that everything about the machine is available to you or any other developer. If you don't get ..

(orcmid) [Clarification: I can't afford to own one of everything I write for.]
(GEORGE MORROW) co-operation from our organization on this point please send me a note directly and I will help. GA
(orcmid) [Thanks. GA Dave]
(Sysop-Dave) Ok, the last question goes to Stan Young, then I've got a few words.
(David Block) Sorry to cut in, but what info do you need?
(orcmid) [Dave, tune to channel 1 to chat if you like -- orcmid]
(Stan Young) George, just wanted to mention that this CO has been considerably more formal than they usually are since we knew you were coming but I'd like to invite you to drop in to any of our Friday night free-for-alls. And thanks for a most interesting evening!
(GEORGE MORROW) Thanks for putting up with this non-free for all. GA
(Chris Morrow) Thanks George.
(GEORGE MORROW) I wonder if we're related?
(Sysop-Dave) Thanks for coming by George, and thank you everyone else for being so cooperative. That concludes the formal CO, every man for himself now!
(Chris Morrow) I'm originally from New York State.
(GEORGE MORROW) My family is originally from Virginia and before that from Scotland. Ga
(GEORGE MORROW) Bye. GA
(Ed NIEHAUS) Good night!!
(David Block) I have to get back to work. PIVOT is almost completed, but you know how software development can be. GA
(Sysop-Dave) Sypko, thanks for helping set things up.
(Sypko Andreae) Welcome Dave. George and Ed just left. Thanking you all again.
(Michael Conroy) What was George's reaction?
(Sypko Andreae) George just loved it.
(Michael Conroy) Think he'll be back?
(Sypko Andreae) He is an increasingly strong supporter of the user group idea, MOR, etc. Yes, he might be back some day.

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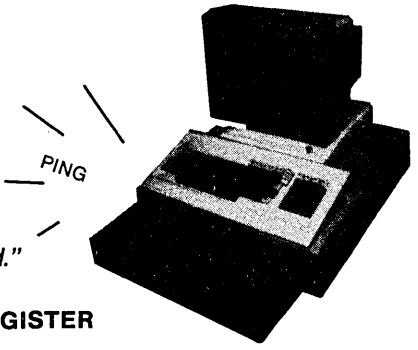

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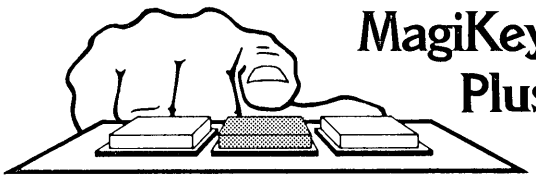

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MagiKey Plus assigns **macros** (character strings) to the keys on any CP/M 2.2 computer. Regular keys, two-keystroke combinations, and function keys can be redefined **simultaneously.** It can add **help messages** to any program. It can wait while you **fill-the-blanks** in a string. Macros can **call other macros,** and can even **define new ones.** It has built-in **batch processing,** and can **jump to a macro** when a macro file is loaded.

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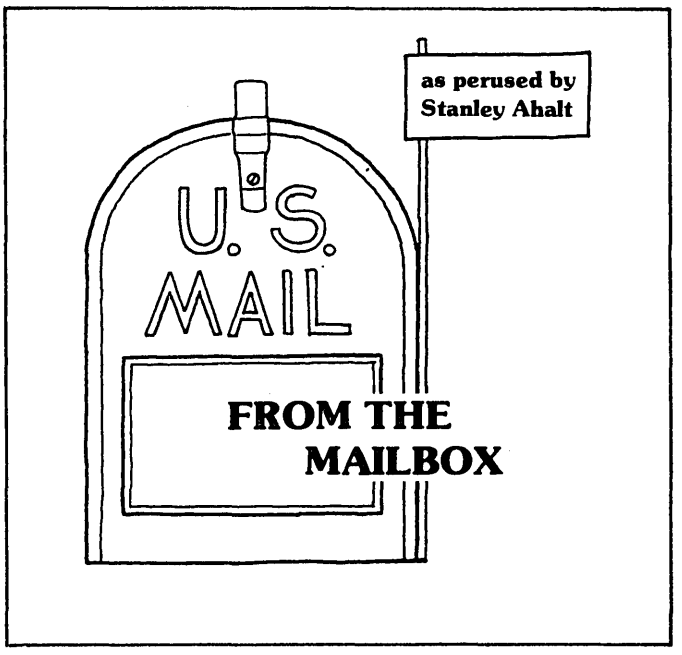

From Robert W., Stuart, FLA - Robert has two questions: 1. How can he get his Prowriter BCD printer to print the Greek and other scientific characters from NewWord? 2. What is the difference between the MD2, Rev. 1.n, and Rev. 2? The major differences between the Rev. 1 and the Rev. 2 boards is that the Rev. 2 boards included a parallel port. For more information, see the Oct. issue of the MOR. Also note that the "n," in Rev 1.n refers primarily to the ROM which is installed in your MD.#

From Ronald B., Milton, PA - Is the new version of the LogiCalc Manual finished? If so, where can it be obtained? Does anyone have the info on this? Ronald also wants to know if the Pilot manual is available. Yes, it is, and you should be able to get it from your dealer. Failing that, send $1 directly to Morrow. Also, Ronald is having problems with the Television Interference (TVI) radiated from his Morrow. Unfortunately, there is not much you can do. As you suggest, shielded cables might help, as well as TVI "traps" which should be available at your local Radio Shack. This problem is addressed by the FCC in their regulations, but since Morrow machines are strictly classified as business computers, they don't have to comply to the more rigid rules imposed on home computers.#

James M., of Concord, MA writes with a tip on how to use NewWord to print two labels across on an MP100 printer. The inclusion of a .PFOFF command at the beginning of your Print Command file will do the trick. Without it, all you get is a repeat of your variable specifications. Thanks for the tip, James.#

From Ken L., Sun Valley, CA (from the LAMUG XBBS courtesy of Robert P.) - If you want to use the AUX port on your Freedom 50 terminal: 1. Set the baud rate and end-of-message switches to the appropriate settings for your printer. The switches are on the rear of the terminal. 2. Bring up the "status line" (see terminal manual) and make sure the terminal is in FR 50 mode. 3. Using the escape sequences specified in the manual, set up the port for word length, stop bits, and parity required for your printer. 4. Now use ESC ..@ to turn the aux port on (echo to the printer) and ESC A to turn it off! Many thanks to all of those who helped with this problem.#

Rebeccah P from ? (sorry, I lost the envelope) writes to tell us that the BAZIC CRT install program only fails if you forget to change the type on the file you are installing. BAZICnn.COM should be changed to BAZICnn.001. Otherwise, the file is not recognized as a "type 1" file. Again, our thanks, Rebeccah. Also, Rebeccah wants to know if the much rumored MD technical manual ever materialized? Well, HOW ABOUT IT, MORROW???#

This month I want to devote a little space to some recent articles which have appeared in local group newsletters. This is by no means a recommendation of these newsletters over any of the others. But I would like to encourage you to join some of the groups around the country, even if you can't attend the meetings. There is a wealth of information in these users groups.

From the Sept. Morrow Users Group newsletter of Washington, DC - If you want to be able to run CORRECT-IT directly from the No File Menu in WordStar, all you have to do is REName CORRECT.COM to SPELSTAR.OVR. Then press S from the No File Menu and WordStar will look for SPELSTAR.OVR (which is really a COM program), then run it. (Of course, it really runs CORRECT.COM.) When WS prompts you for the file to be corrected, use the name of the file that you actually want CORRECT-IT to correct. Unfortunately, I haven't found a way to re-enter WS once CORRECT-IT is finished. I always get dumped out into CP/M. Maybe someone out there can enlighten me.#

From the August issue of the CP/Morrow Computer Group Newsletter, Sacramento, CA - This issue begins a comprehensive review of spreadsheets, and frankly, it is one of the best reviews I have ever seen. Written by Rob Krumm, it discusses Lotus 1-2-3, Supercalc 2&3 and Multiplan. If you aren't getting what you want from LogiCalc, you would be well advised to read this review before you buy anything else.

From the Sept. issue of the same newsletter - If you have always been confused about the difference between microjustification and proportional spacing, take a look at the article "WordStar & NewWord VI, Getting The Most From Your Word Processing Software," by Robert Throckmorton. A very informative article. Also in the same issue is an article which discusses

Pie Charts, Line Graphs, and Bar Graphs. Some examples of what you can do with GRAFIKS 2.4 are included.#

Finally, from the August/September issue of the Micro Decision Newsletter put out by CMDUG, New Haven, CT - If you are unhappy with the contrast and intensity of the video display of your MDT 60 terminal, you can improve things by making a small change to one of the resistors in the terminal. I refer you to the article called "The Morrow Tool Box" by Dave Mintie. This is a clearly-written description of what you need to do to make the resistor change yourself. The Oct/Nov issue of the same newsletter has another great article. In this installment of "The Tool Box," Jim Duckworth discusses the addition of a parallel printer port for those of us with the "old" Rev. 1 boards. The article also lists the library disks available to help you with the BIOS modifications necessary to drive your new parallel port. Recommended reading.#

I would like to say "HELLO!" to Herb Kahler's mother. I hope you enjoy this issue of MOR.#

That's it for another issue! PLEASE keep the questions and answers coming in. Of course, disk format is preferred, but not required.

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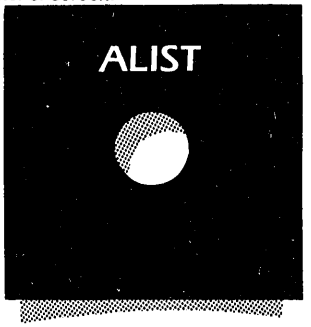

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INSIGHT

COMPUTERESE EVEN A MOTHER WOULD LOVE
== SPREADSHEET CALCULATORS, PART 2. ==

by Art Zemon

In "Spreadsheet Calculators, Part I," we built a very small budget model using LogiCalc. The model contained three categories but only a single time period. In this article, we will expand the model to include three time periods. I will also give a few more examples of how formulas can be used.

Throughout this article, I will phrase the examples for use with LogiCalc. All of the things we explore can also be done with other spreadsheets, such as SuperCalc and MultiPlan. When I give an example, I will always mention what a given keystroke sequence is meant to accomplish. If you do not have LogiCalc, you should be able to determine the keystroke sequence for your spreadsheet calculator from your owner's manual.

Where We Left Off

At the end of the last article you should have had a spreadsheet which looked like this:

```
Col>|A         |B       |C       |D       |E
Row:-------------------------------------------
  1|>Food      < 200.00
  2| House       500.00
  3| Utilities   150.00
  4|
  5| Total       850.00
```

(Your screen will probably be slightly different. I have made columns B-E narrower than normal so that they will fit within a MOR column. You can ignore this difference; it will not affect your ability to work the examples in this article.)

The angle brackets, "> <", are LogiCalc's cursor and indicate the current cell. If you do not have the sample spreadsheet from last time then simply build a spreadsheet which looks like the picture. Cell B5 is the only unusual cell; it contains a formula for summing rows 1 through 3 of column B. In LogiCalc, cell B5 contains the formula:

+sum(B1>B3)

Inserting a New Row

One of the many nice features of a spreadsheet calculator is the ability to insert new rows and columns into a partially built model. We will be expanding the model to include three months, April, May, and June. These months will be represented by columns B, C, and D, respectively. Column E will hold totals.

Position the cursor at cell A1, and insert a new row before (above) the cursor by typing:

;IR

As you press those three keys, watch the screen. You are actually working your way through a miniature set of menus. You should end up with a screen which looks like this:

```
Col>|A         |B       |C       |D       |E
Row:-------------------------------------------
  1|>          <
  2| Food        200.00
  3| House       500.00
  4| Utilities   150.00
  5|
  6| Total       850.00
```

Aside from inserting a new row at the top of the spreadsheet, LogiCalc has done something else which is just as helpful but perhaps more subtle. Move the cursor to cell B6 and look at the contents. Your formula which used to be "+sum(B1>B3)" has changed to "+sum(B2>B4)." LogiCalc has automatically adjusted the formula so that it still refers to the same three numbers that it originally did.

In adjusting the formula, LogiCalc has tried to be smart about what needs to be done. In this case, LogiCalc did the right thing; we are going to put labels in the new row, but the labels should not be included in the arithmetic performed on the numbers. On the other hand, if we had placed another row of numbers at the top, then the formula in B6 would be wrong. Usually LogiCalc will do the right thing. You should be especially watchful of your formulas, though, to be sure that they always do what you intend them to do.

Now add the words "April," "May," "June," and "Total" to row 1, columns B, C, D, and E. You should end up with a screen something like this:

```
Col>|A        |B       |C       |D       |E
Row:-------------------------------------------
  1|          April    May      June     >Total  <
  2| Food     200.00
  3| House    500.00
  4| Utilities 150.00
  5|
  6| Total    850.00
```

A Small Point on Formatting

The labels at the tops of columns B-E would look better if they were centered within their respective cells rather than left justified. This is easily done in LogiCalc simply by typing "/c" as the new contents for a cell. The "/c" does not actually replace the contents of the cell; it simply causes the contents to be centered when displayed. Move the cursor to each of cells B1-E1 in turn, and enter "/c" as though it were to replace the word already there.

Centering a cell is one point where LogiCalc differs significantly from most other spreadsheet calculators. Usually, centering is selected from within a formatting menu or command. If you do not have LogiCalc, look at the options available to you for formatting a cell. Centering will probably be one of them.

Now fill in the rest of the spreadsheet with numbers. If you use the same ones that I have, then your arithmetic will match my examples. You should end up with a screen which looks like this:

```
Col>|A        |B       |C       |D       |E
Row:-------------------------------------------
  1|          April    May      June     Total
  2| Food     200.00   175.00   225.00
  3| House    500.00   500.00   500.00
  4| Utilities 150.00  140.00>  135.00<
  5|
  6| Total    850.00
```

Copying Formulas--More Spreadsheet Magic

If you have LogiCalc, position your cursor at cell B6, type the following line, and watch what happens before reading the explanation. (The sequence "^D" means type "CONTROL-D" or "hold down the `CTRL' key while pressing `D'". The sequence "<RETURN>" means press the carriage return key. Do not type the spaces; I just added them to make the line easier to read.) Be sure the cursor is in cell B6 before typing this.

```
; C <RETURN> ^D > ^D <RETURN> R
```

Your screen should look like this:

```
Col>|A        |B       |C       |D       |E
Row:-------------------------------------------
  1|          April    May      June     Total
  2| Food     200.00   175.00   225.00
  3| House    500.00   500.00   500.00
  4| Utilities 150.00  140.00>  135.00<
  5|
  6| Total    850.00   815.00>  860.00<
```

What did all this do? Basically, you copied the formula in B6 to cells C6 and D6. Here is a keystroke-by-keystroke explanation.

Key	LogiCalc's Response and an Explanation
;	Command> Begin a command.
C	from coord (>coord): B6 LogiCalc wants to know where to copy from. It assumes you want to copy from the current cell.
<RET>	to coord (>coord): B6 LogiCalc wants to know where to copy to (the destination). Again, it assumes the current cell.
^D	to coord (>coord): C6 Move the cursor one cell to the right. LogiCalc now reflects the destination as cell C6.
>	to coord (>coord): C6> This tells LogiCalc that you will be copying the contents of B6 and replicating it at the same time. LogiCalc is now waiting for the second coordinate of a range of cells.
^D	to coord (>coord): C6>D6 You have defined the range of cells as C6 through D6. You could have made this range twenty columns wide as easily as you have made it two columns wide.
<RET>	R)elative, P)rompted or N)o adjustment? Since you are copying a formula, LogiCalc wants to know how the copies should be created. "Relative" means that references to other cells should be kept relative to the cell containing the formula. For example, references to cells in the same column as the formula will be adjusted so that copies of the formula will also refer to the correct cells. "Prompted" means ask you for each copy. "No adjustment" means that the formulas are not to be changed at all.
R	You select "relative" copying and LogiCalc does the rest.

If you do not have LogiCalc, then you will have to read your owner's manual to discover how to copy cells. This is one of the most powerful things which a spreadsheet calculator can do for you. It is well worth looking up if you do not already know how to do it.

A Few Pointers

In case you did not notice this as it went by, I want to point out that you never really typed any commands or coordinates for the copy operation. Everything was done by pointing at cells with the cursor.

Most spreadsheets, LogiCalc included, allow you to avoid typing whenever possible by using the cursor as a pointer. Because of this, even two-fingered typists can use spreadsheet calculators as well as anybody. Watch how in the next section we build an entire formula without typing any coordinates.

Building Formulas a Point at a Time

The spreadsheet we have built still contains an empty column. The "Total" column should contain totals for "Food" and the other categories. The formula to do this will be much the same as the formula used across the bottom row. We will build it, however, without typing the cell coordinates.

Position the cursor in cell E2 and type the following five characters:

+sum(

Now move the cursor to cell B2 (by typing ^S three times). As you move the cursor, watch the formula that you started to type. It should change from "+sum(D2" to "+sum(C2" to "+sum(B2" as the cursor moves. The coordinate will always be that of the cell pointed to by the cursor.

Now type the character ")". The formula will change to "+sum(B2)". Move the cursor back to cell D2, again noticing that the formula tracks the cursor. Finally, type a ")". You should end up with the formula:

+sum(B2)D2)

When you hit <RETURN>, LogiCalc will enter the formula into the cell where you started (E2) and display its value, 600.00.

Finally, use the ";C" (copy) command to duplicate the new formula into cells E3-E6. Again, you can use the cursor to point to the cells you want. If you are confused about how to go about this, use the step-by-step instructions from the previous copy operation. Just point to different cells. The result should be the following spreadsheet:

```
Col>|A          |B       |C       |D       |E
Row:-------------------------------------------
  1|            April     May      June     Total
  2| Food       200.00   175.00   225.00    600.00
  3| House      500.00   500.00   500.00   1500.00
  4| Utilities  150.00   140.00   135.00    425.00
  5|                                         0.00
  6| Total      850.00   815.00   860.00)  2525.00(
```

The Electronic Eraser

I intentionally gave you instructions which would leave "0.00" in cell E5 so that I could point out one more useful feature of spreadsheet calculators. You can erase entries that you no longer need without affecting the rest of the model.

Move the cursor to cell E5 and type the following sequence.

;DE

This will delete the contents of cell E5. You could have used the delete command to delete an entire row or column without affecting the rest of the model. Any formulas which included the row or column would have been readjusted appropriately.

Actually, in some circumstances LogiCalc will not adjust a formula properly. As with insertions, you should always recheck your formulas after deleting a row or column.

Now that you have built the model, you are ready to answer "What if...?" questions. Set the spreadsheet to automatically recalculate whenever any cell is changed (type: ";OR") and try changing some of the numbers. All of the affected formulas will automagically change whenever you hit <RETURN>.

Summary

A sage once said of his religion, "Do not unto others that which is hateful to you. All the rest is commentary. Go and learn it." Much the same applies to spreadsheet calculators. I was a bit more wordy, but you now know how to do all of the basic functions. All of the other things which you can do are built on top of the operations that I have covered.

You know how to fill in numbers and text, create formulas, copy the contents of cells, insert new rows and columns, and reformat cells. Other operations, such as deleting a row or column, work in very similar ways. There are also other arithmetic operations besides "sum." I encourage you to explore all the things your spreadsheet calculator can do.

I think you will be pleasantly surprised at how versatile a spreadsheet calculator can be. It is certainly not a tool reserved for accountants.

I hope this article has proven helpful to you. If you have questions, please write to me at one of the following addresses. I will do my best to help you out.

In response to Part I of this article (see MOR, vol. 1, #4), several people have written to ask if there is a program to transfer spreadsheets from LogiCalc to SuperCalc. If anyone has developed a method, please let me know.

Arthur Zemon
4743 Matney Ave.
Long Beach, CA 90807

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THE COMFILE

by Ed Niehaus, Morrow Inc.

I've got a new job, so let me be the first to tell you about it. I'm Western Regional Sales Manager. It involves around ninety percent travel. My car will have to get used to five days a week in the airport parking lot.

I've always been a communicator. It's what I do for a living. I use many media, but I'm here to tell you that there's no substitute for being there. That's exactly what I've been doing: travelling around meeting people.

Travelling around showing off the Pivot. It's the most fun I've had in a long time: showing a product to people and hearing all the nice things they say about it. Morrow clearly made some right decisions about this product. First off, we priced it right--$1995 with 128K and one disk drive; and two systems with two disk drives: $2895 for 256K and $3695 for 640K. (For more information, see "Pivot, Anyone?" on page 50) It seems as if the most important decision we made was to use standard IBM 5.25 inch disks, so you can take your disk out of your IBM PC and put it in your Pivot.

But wait a minute, you say, what's going on here? I don't have an IBM PC, I have a Morrow Micro Decision--what's up? Is Morrow abandoning all of us? Is there any reason why I should buy a Pivot? Sure, I can carry it around and use it, but how do I connect it to my Micro Decision?

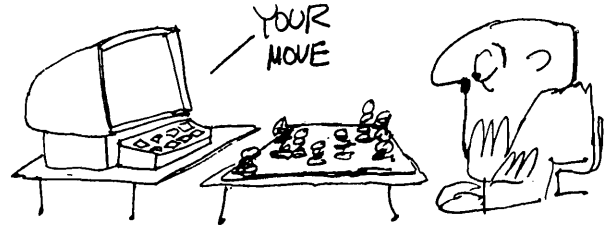
True, those of us who own a Micro Decision and a Pivot don't have it quite as easy as those who have a PC and a Pivot. However, part of this column was written on my Pivot during a flight between Dallas and Denver. Then, using a program called Uniform, I transferred the file from my Pivot to my MD3. It took about two minutes.

I have also been known to use MCI Mail to transfer files across. I'm a telecommunications junkie: I'm signed up with Dow Jones, The Source and CompuServe. I get a big kick out of the Friday night Morrow users meetings we have on CompuServe. To me the best part about the Pivot is the ease with which it deals with the phone. Push a button and I'm into the MCI Mail. (Let me add my voice to those who say nice things about this electronic mail facility. If you haven't signed up yet, call MCI mail--800-MCI-MAIL--and ask them about it. This may be for you. By the way, Sypko tells me that most articles for this issue of MOR reached him via MCI Mail.)

Now, how about the abandonment count? Not guilty--the jury won't even have to leave the box. Some people have said we are silly to keep improving the Micro Decision line, that the day would come soon when we couldn't give away an eight-bit box because of the world's fascination with big blue. Those people must be greatly surprised with the big upswing in orders for MDs.

What's keeping it going? Partly our aggressive pricing. How about a complete hard disk system for $1999? A lot of credit goes to our gorgeous new MDT 70 terminal with its amber tilt-&-swivel screen and low profile keyboard. People come in to buy Kaypro after their many ads, see our new stuff and walk out with a Morrow.

A great deal of credit goes to our loyal users. They simply tell their friends how happy they are with their Morrow Computers. Our image is the property of the industry insiders--those in the know who like value for their money. Outside of this select group, few have heard of Morrow. It looks to me as if Pivot will help fix this. It is a dramatic new product with a clearcut niche in a large market segment. Hopefully, soon you will be able to show off your computer without always having to answer the question--"Who's Morrow?"



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NOTES FROM A SMARTKEY USER

by Ted Silveira

Smartkey II is a very handy key-redefinition utility. It allows you to store words, phrases, and even complicated series of commands and recall them with a single keystroke. Morrow now includes Smartkey II with its software package, and my local dealer now sells this Morrow version of Smartkey II for only $25 to those of us who already own Morrows (regular price is around $80).

But there's a catch. This version of Smartkey II has been specially adapted for the MDT 60 terminal, and it won't work with other terminals, such as the Freedom terminals Morrow used to use or the popular Televideo terminals. Rats.

Still, the price was so good, I decided to take a chance. I bought a copy of this special Smartkey II, even though I have a Televideo 925 terminal. When I got it home and tried to run it, it didn't work (just as I'd been told it wouldn't). So I got out my copy of DDT and started poking around, and half an hour later I had a working copy of Smartkey II. (Blind hog finds an acorn.)

So far, I've found no problems with this modified version of Smartkey II, though there's always the off chance that a bug may be lurking somewhere, waiting for me. It runs fine on Morrows with Televideo terminals and should, I believe, work with the Freedom or any other terminal (except possibly the MDT 20)--but I can't guarantee it. For $25, you can afford to take a small risk.

Here's what you do. Make a working copy of your Smartkey II master disk, and put the master away in a safe place. Then copy SMARTKEY.COM onto a blank, formatted, and sysgened disk. Copy DDT.COM onto this same disk. (DDT.COM is on your CP/M distribution disk, if you've never seen it before.) You might also want to put PIP.COM or NSWP207.COM on the disk to copy off the results when you're done.

Put everything else away; stick the disk with SMARTKEY.COM and DDT.COM in the A: drive, and hit a control-C. Now try running Smartkey as is. If Smartkey signs on, tells you it's ready, and gives you back the A> prompt, then you're in luck. You can run the program as is, without any patching at all. But if your computer just goes dead, you're going to have to use DDT. Hit the reset button to clear your machine, and read on.

You're going to use DDT to modify Smartkey and save the modified version under the name SK.COM. What follows is a transcript of the session you'll go through with DDT. The lowercase letters are what you type, and the UPPERCASE letters are DDT's responses. The hyphen sign (-) is DDT's prompt. The <CR> sign means that you hit a carriage return. The ^C sign means that you hit control-C. Anything on the right side enclosed in square brackets [ ] is just a comment put in by me. Do not type it. OK? Let's go--you start by typing "ddt smartkey.com" at the A> prompt.

```
A>ddt smartkey.com <CR>

DDT VERS 2.2                [DDT signs on . . .]
NEXT PC
1900 0100
-                           [and gives its prompt]

-f1113,113c,00 <CR>         [type "f113,113c,00"]
                            [and a carriage return]

-^C                         [hit control-C to exit]

A>save 24 sk.com <CR>       [type "save 24 sk.com"]
                            [and a carriage return]
A>
```

You now have a new program on your disk, called SK.COM--your modified version of SMARTKEY.COM. Try running it by typing "sk <CR>" at the A> prompt. If Smartkey II signs on, shows you its version and serial numbers, tells you it's ready, and gives you back the A> prompt, then you're in business. Copy SK.COM onto your Smartkey working disk and use it in place of SMARTKEY.COM. Now go read the manual to find out how to use it.

If your new SK.COM didn't work, do the patch session with DDT over again, making sure to follow the directions exactly. If it still doesn't work, you may have discovered a new problem. In that case, bring the details of your problem, your copy of Smartkey II, and information on your terminal type to your next users group meeting. Hopefully, there will be someone there who can help you. If you don't have a users group...at least you still have your original copy!

(From the Santa Cruz Micro Decision Users Group newsletter)

ZCPR3 MAKES CP/M 2.2 SHINE

by Ted Silveira

ZCPR3 (Z80 Command Processor Replacement Version 3), a Public Domain software package, is now available. The following is my attempt to give a quick explanation of it along with how to get a hold of it.

ZCPR3 is a modification of CP/M 2.2 which extends the power of CP/M and provides access to a number of very useful utilities. Once installed, it is a whole lot easier to deal with CP/M, and the utilities let you perform a rich assortment of functions with an ease and speed unheard of in the operation of the unmodified CP/M 2.2.

The installation procedure is kind of tricky for novices, but there is now an installation package available for Morrow MD2 and MD3 computers (sorry, MD11 owners, ZCPR3 only works with CP/M 2.2), which makes the installation much easier. This package is available presently from the LAMUG XBBS RCP/M system at 818-340-9947 (24 hrs, 300/1200 baud). We also hope to have it available on floppy soon through the LAMUG Library.

The installation package contains all you will need for the installation of ZCPR3, though the other utilities and source code must be obtained separately. These can be acquired through many RCP/Ms throughout the country (including LAMUG XBBS), and are also available for a per-disk charge from the author's company: Echelon Inc. 101 First St. Suite 427, Los Altos, Ca. 94022.

For more details on ZCPR3 for the Morrow, contact Brian Leyton at the LAMUG XBBS, MCI Mail I.D. BLEYTON, or at 12613 Killion St. No. Hollywood, Ca. 91607 (818) 766-3307.

Bob Johnson, Talking Pictures

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DECIPHERING YOUR TERMINAL MANUAL

by John Vanderwood
Documentation Manager, Morrow Inc.

Many users are vaguely aware that their terminals can do things like show reverse video or display graphics characters. Yet they never see the terminals perform such interesting feats, and they can't figure out how to make the terminal do them either.

The source of confusion is those confounded "control codes" and "escape sequences" that every manual lists but doesn't explain. This article tells you what escape sequences are, where they come from, and how you can use them. We'll cover all Morrow terminals. The principles apply to any terminal on the market.

ASCII Data

When data comes across a terminal or serial printer cable, it's simply one seven-bit byte after another (a bit at a time, of course). There's nothing that distinguishes the meanings of the bytes except their bit patterns.

Now, many of the patterns stand for letters and numbers. Refer to Figure 1. Find the capital A in the body of the chart.

Here's how to find the bit pattern for "A":

- Across the row of 0's and 1's near the top of the chart you'll find "100" above the A. These are bits 7, 6, and 5.
- Bits 4, 3, 2, and 1 are located down the left side of the chart. For A, you'll see they are "0001".

Thus the bit pattern for "A" is 100 0001.

As you know, such patterns are more frequently expressed as hexadecimal numbers. 100 0001 translates to 41 Hex. Look again at Figure 1. In the "Hex Bytes" row and column that form the outside of the chart, note that "4" is above the A in the 1st Byte row, and "1" is across from the A in the 2nd Byte column. 41 Hex. No coincidence.

Now you know how to read an ASCII chart. Avoid getting confused on this point: The patterns have little logical relationship to their meanings. For example, the pattern for "2" is NOT 02 Hex. That would be too easy. It is 011 0010 or 32 Hex.

		CONTROL CHARACTERS		DISPLAYABLE CHARACTERS					
HEX BYTE 1ST		0	1	2	3	4	5	6	7
2ND	BITS $^{4}3_{2}1$ BITS $^{7}6_{5}$	0_0	0_1	0_{10}	0_{11}	1_{00}	1_{01}	1_{10}	1_{11}
0	0000	NUL	DLE		0	@	P	`	p
1	0001	SOH	DC1	!	1	A	Q	a	q
2	0010	STX	DC2	"	2	B	R	b	r
3	0011	ETX	DC3	#	3	C	S	c	s
4	0100	EOT	DC4	$	4	D	T	d	t
5	0101	ENQ	NAK	%	5	E	U	e	u
6	0110	ACK	SYN	&	6	F	V	f	v
7	0111	BEEP	ETB	'	7	G	W	g	w
8	1000	BS (←)	CAN	(	8	H	X	h	x
9	1001	(SKIP) HT	EM	)	9	I	Y	i	y
A	1010	LF (↓)	SUB	*	:	J	Z	j	z
B	1011	VT (↑)	ESC	+	;	K	[	k	{
C	1100	FF (→)	FS	,	<	L	\	l	¦
D	1101	CR	GS	-	=	M	]	m	}
E	1110	SO	(HOME) RS	.	>	N	^	n	~
F	1111	SI	(NEW LINE) US	/	?	O	--	o	DEL

USE CTRL KEY WITH DISPLAYABLE CHARACTER KEYS TO PRODUCE CONTROL CODES

FIGURE 1. ASCII CHART

Control Codes and Escape Sequences

So far our examples were A and 2, both displayable characters. But the terminal has to understand more than characters: it needs to know where to put the cursor, when to go from bright to dim, when to ring its "bell", and many other details.

These details are handled by control codes and escape sequences. Control codes are just more seven-bit patterns, while escape sequences are two bytes or 14 bits long. Control codes will be the subject of Part 2 in this series. They are nice to understand but they don't do the interesting things that escape sequences are capable of. So we're going to focus on escape sequences for the rest of this installment.

What Is An Escape Sequence?

Control codes were used in teletype machines to control communications protocol and positioning of text on the paper. Many of the codes are still used with video terminals today. But today's terminals can do many things that teletypes never dreamed of. And there are only 128 possible patterns to go around for all the letters, numbers, punctuation marks, and control codes.

The programmers eventually ran out of patterns.

Hence the need for escape sequences. They are very similar to control codes in that they make the terminal behave in a certain way instead of simply displaying a character. Unlike control codes, escape sequences need two bytes.

The first byte is always the ASCII "ESC" control code (001 1011 or 1B Hex). This is followed by one or more otherwise displayable characters. The terminal constantly checks incoming data for the special ESC code. When one arrives, it knows that the next character(s) will stand for a command instead of normal text.

Get your terminal manual and turn to the appropriate page:

MDT 20 - page 3-11
MDT 50 - page 25
MDT 60 - page 3-16

This is the list of escape sequences recognized by your terminal. Be aware that there's little standardization among terminals regarding how they interpret escape sequences. **This is why most software has to be installed for a certain terminal.** The software has to know which escape sequences to send out to paint the display properly.

All Morrow terminals recognize escape sequences that are very similar to those used by the Lear Siegler ADM-31. That should ring a bell.

How to Use Escape Sequences

Many escape sequences can be entered from the CP/M prompt (A>, B>, etc.), but this is NOT their intended use. You might want to change the type of cursor on the screen, or turn the keyclick off. You could also trigger graphics mode or reverse video. This applies primarily to the MDT 60, and its usefulness is fairly limited.

Most of the time, however, escape sequences are sent out by a program that is running. When you press CTRL-G (erase a character) under WordStar or NewWord, the program responds by sending out "ESC W" for "delete character". The actual code is 1B 57 Hex.

Therefore this information will be most useful to people writing BASIC or PILOT programs that make use of cursor positioning or "screen attributes" (highlighting, dim, etc.).

EXAMPLE 1: Changing the cursor type

MDT 60: See page 3-15 of the MDT 60 User's Guide.

At the A> prompt, press the **ESC** key, then " (using SHIFT), and finally **5**. Press **RETURN.** Your cursor is now a non-blinking underline. It will stay like this until you turn the terminal off or enter another cursor type sequence.

With the MDT 50, the command is **ESC . 3** The cursor will be a blinking underline. See page 32. The MDT 20 has the same capability using the SETUP key, but not with escape sequences. See page 2-9.

EXAMPLE 2: Entering graphics mode (MDT 60 only)

See page 3-13. Type **ESC $** (using SHIFT for the dollar sign). Hit **RETURN.** Now type keys randomly and see what you get. Use the SHIFT key for more graphics characters.

Enter **ESC %** to return to normal mode.

EXAMPLE 3: Keyclick on/off

MDT 60 - See page 3-16. At the A> prompt, press **ESC,** then **J,** and **0.** Hit **RETURN.**
The electronic keyclick is now disabled.
Enter **ESC J 1** to re-enable it.

MDT 50 - See Appendix page 3. At the A> prompt, press **ESC** and then **<** (shifted comma). Hit **RETURN.** Turn keyclick back on with **ESC >.**

The MDT 20 also has this capability using the SETUP key, but not with escape sequences. See page 2-20.

Programming Escape Sequences With BASIC and PILOT

This is where escape sequences become really useful. You can exercise virtually all of the terminal's advanced features when you send escape sequences from within a program to the terminal. Most used will be random cursor positioning and video attributes.

With BASIC, the sequences are part of PRINT instructions. With PILOT, they are part of TYPE (T:) commands. In the command list, the upper line is BASIC, signified by [B]; the lower line is its PILOT equivalent [P].

1. Clear screen and home cursor:

```
PRINT CHR$(26)      [B]     (this is actually a
CLRS:               [P]      control code)
```

2. Absolute cursor positioning:

```
PRINT CHR$(27);"=";CHR$(ROW+32);CHR$(COL+32)
                                    [B]
```

This assumes that ROW and COL are previously

defined variables, representing the decimal number of the row (0-23) and column (0-79).

```
CUR:C,R              [P]
```

PILOT expects column and row number in the opposite order from BASIC. They are expressed as decimals from 0-23 for row and 0-79 for column. PILOT.COM handles translating this simple syntax into actual ADM-31-style escape sequences.

3. Set visual attribute:

This controls things like bright or dim, blinking or steady, reverse video, and on-screen underlining.

```
PRINT CHR$(27);"G";"n"   [B]
T:^^1B^^47n              [P]
```

where n is a digit or other character.
MDT 60 - See page 3 - 6.
MDT 50 - See page 34.
MDT 20 - Again, this is a special case. You select only one possible "unusual" attribute with the SETUP key (page 2-9). It is then enabled/disabled by a program with:

enable:

```
PRINT CHR$(27);"&"       [B]
T:^^1B^^26               [P]
```

disable:

```
PRINT CHR$(27);"'"       [B]
T:^^1B^^27               [P]
```

4. Set cursor type (MDT 50 and 60 only):

MDT 60 -

```
PRINT CHR$(27);CHR$(34);"n"  [B]
T:^^1B^^22n                  [P]
```

where n is a digit 0 - 6. See page 3-15.

MDT 50 -

```
PRINT CHR$(27);CHR$(46);"n"  [B]
T:^^1B^^2En                  [P]
```

where n is a digit 0 - 3. See page 32.

5. Home cursor without clearing screen (control code):

```
PRINT CHR$(30)           [B]
CUR:0,0                  [P]
```

6. Ring terminal's bell (control code):

```
PRINT CHR$(8)            [B]
BELL:                    [P]
```

7. Enter Graphics Mode (MDT 60 only):

```
PRINT CHR$(27);"$"       [B]
T:^^1B^^24               [P]
```

To leave Graphics Mode:

```
PRINT CHR$(27);"%"       [B]
T:^^1B^^25               [P]
```

8. To display all of the graphics and European characters available in your character ROM (MDT 60 only):

```
10   PRINT CHR$(27);"$"       [B]
20   FOR X=0 TO 127
30   PRINT CHR$(X);
40   NEXT X
50   PRINT CHR$(27);"%"

C: A=0                        [P]
C: B=128
T:^^1B^^24
*LOOP
TNR:^^#A
C: A=A+1
C: C=B-A
JY: *LOOP
T:^^1B^^25
END:
```

How do you get from the list of escape sequences to these commands? In case you haven't made the connection yet, "CHR$(27)" stands for the ESC code in an escape sequence. It means "send the terminal the code for the 27th ASCII character." The 27th character in Hex is the 1Bth character, which you can see from Figure 1 is ESC.

"T:^^ ..." is an otherwise undocumented feature of PILOT which means "send the terminal this hex character, without treating it as if it were text." 1B, as noted above, is the Hex code for ESC.

Now we come to the second part of this article, which gives a detailed explanation of control codes and attempts to eliminate the confusion they can cause.

A word of warning: This article won't really tell you how to do anything useful. It is intended mainly to tie together some scattered concepts that have a tendency to confuse and intimidate unsophisticated computer users like myself.

In the first part of this article we saw how escape sequences are used by programmers to exercise such advanced features of modern terminals as blinking and reverse video. This installment focuses on control codes, which are similar to escape sequences but

perform more fundamental and mundane chores.

But first, a note about the MDT 50 manual...

Those of you who selected the Morrow MDT 50 terminal have purchased a well-respected piece of hardware. However, its "preliminary" manual is not quite up to par. And you may be wondering when the final version will be available.

Without going into details, relations between Liberty Electronics (the manufacturer of the MDT 50) and Morrow have seen better days. When the Liberty/Morrow OEM agreement was made, Liberty hurriedly produced the preliminary version just for Morrow, with the understanding that a final manual would come about in a reasonable time. Unfortunately, when a "reasonable time" had passed, so had the honeymoon days of Morrow and Liberty.

If there were ever to be a polished, illustrated MDT 50 manual, it would be up to Morrow to produce it. The MDT 50 is now a discontinued product. And the text of the preliminary version is correct, albeit dense and unappealing. So we decided the best allocation of documentation funds would not include an MDT 50 overhaul. We apologize and beg your understanding.

[There is a Freedom-100 manual available from Liberty Electronics in San Francisco for about $10. (415) 543-7000. Even though it describes the few additional features the Freedom-50 does not have, it is quite adequate for use with the Freedom-50 terminal, which is for all practical purposes identical to the MDT 50. Editor.]

What Control Codes Are

In normal serial communication between a computer and its peripherals, seven bits are used to form unique patterns of 1's and 0's that define numbers, letters, punctuation marks, and control codes.

In terms of bit patterns, the only thing that distinguishes a control code from a letter is the fact that its two highest bits (7 and 6) are ALWAYS ZERO. Letters, numbers, and punctuation marks always have a one for either or both of these bits.

Take a look at the ASCII chart in figure 1, a few pages back. It is divided into Displayable Characters and Control Characters (= control codes). Refer to the first part of this article for instructions on reading an ASCII chart if you need help.

Notice that the table doesn't list names like "CTRL-J". Instead it has strange names like NUL and SOH. Most of these are specifically for teletype machines and their meanings are lost in the mists of antiquity. Others are still in use with video terminals and printers. These are the ones that interest us here.

Example: LINE FEED. A "line feed" occurs when your cursor moves down a line onscreen, or when your printer rolls the paper up a line. Find LF in the table. See that its bit pattern is 000 1010 or 0A hex. You'll also note the pattern for J is 100 1010 or 4A hex. The only difference between J and Line Feed is the setting of the first bit. Line feeds are commonly referred to as "CTRL-J's".

> FUNDAMENTAL PRINCIPLE #1: To discover the "CTRL" letter for a control code (instead of the NUL or DLE-type designation), add 40 Hex to it - in effect, move four columns across the table. Line Feed = CTRL-J. Back Space (BS) = CTRL-H. Et cetera.

Here's a useful exercise that helps everything fall into place. It may make you nervous to try it, but you should do it anyway. You won't be risking danger to yourself or your terminal, I promise.

1. Turn your terminal and computer off. Disconnect the terminal's cable at the terminal end so the DTE or RS-232 connector is accessible. Insert a small unfolded paper clip (or thin stripped wire) into holes 2 and 3 as shown below. Don't force the paper clip if it's too large for the hole - use something thinner.

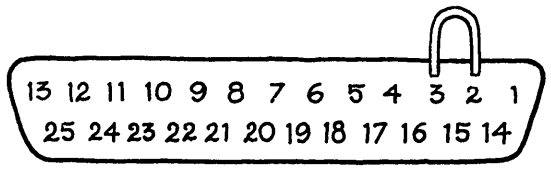


Figure 2: Jumpering DTE connecter pins 2 and 3.

2. Turn the terminal back on - you don't need the computer for this. Enter these keystrokes and watch what happens:

CTRL-Z to home the cursor
CTRL-J for line feeds
CTRL-I to move into the screen by tab
CTRL-L to move right one space at a time
CTRL-H to back space or back tab
CTRL-M to go all the way left (carriage return)
CTRL-K to go up a line (vertical tab)
CTRL-G to ring the bell

Look in your manual for a table of these codes and what they make your terminal do:

MDT 20	page 3-9
MDT 50	page 24
MDT 60	page 3-11

Now you know how programs like NewWord paint your screen. When you install such a program for your terminal, it builds up a table of these codes and

escape sequences. So when it's time to move to the left edge of a line (say, when you enter ^QS), it looks in the table and discovers that the correct code to send your terminal is CTRL-M.

You can restore your hardware to its normal setup now, by the way.

Parenthetically, NewWord knows that your Morrow terminal can use the "random cursor positioning" escape sequence covered in the first part of this article. So to move the cursor from the top to the bottom of the screen, NewWord would send out one such escape sequence. With a more primitive terminal, it would accomplish the same thing by sending out 24 line feeds in a row.

Why Control Codes Confuse People

In virtually any terminal manual, you'll be told that **CTRL-G** causes the terminal's bell to ring. ("Bell" is a carryover from teletype machines that actually used a bell instead of a beeper.) But you say: I thought CTRL-G meant "erase a character"!

Similarly, **CTRL-L** moves the cursor one space right, according to the manual. "Now wait a minute," you object. "CTRL-D moves the cursor right, and CTRL-L means repeat, find & replace. I'm confused." Perfectly understandable.

The problem here is that when you press a key, its code passes through several layers of software. The code that gets sent back to your terminal may (and probably will) be completely different from the one you type.

> FUNDAMENTAL PRINCIPLE #2: Letters and control codes do NOT go straight from your keyboard to the screen. They go from the keyboard to the computer, where they are interpreted. The computer either "echos" them back to your screen (what usually happens when you type letters), or it acts on them, as in the case of a NewWord CTRL command. In the latter case, something gets sent back to your screen, but it's not the same as what you typed.

Now you can see the reason for the paper clip trick. It eliminates the software manipulation of control codes you type. The paper clip is taking outbound data from the connector's pin 2 and feeding it straight back into the inbound data pin, #3.

Summary

Control codes and escape sequences are a programmer's way of getting your screen to look the way it should, with the least possible time spent repainting it when something is added to or taken from the display.

Control codes, by virtue of their long and venerable history, are highly standardized among terminals. They are the absolute minimum of codes needed to move a cursor around on the screen. Escape sequences handle the more fancy stuff. There is almost no standardization of escape sequences among terminals.

The more flexible a terminal's selection of escape sequences is, the more advanced or "intelligent" it is considered to be. When a terminal possesses a high degree of intelligence (as do all Morrow terminals), it can handle more display chores on its own, freeing the CPU to go on to less trivial affairs. Thus everything simply runs faster.

To test the effects of control codes and escape sequences yourself, you need to bypass the computer. Otherwise CP/M and application programs will probably trap them and turn them into something else (or simply eat them up so your screen never knows you typed anything).

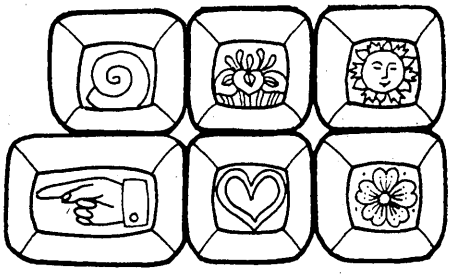
Advanced Fun

In this world of everything being the same, just different, it's not surprising that your printer will recognize most of these control codes too.

Sending control codes and escape sequences to your printer can be done by way of the **pip lst:=con:** command. Note that escape sequences for printers are quite different from those used by terminals; they control stuff like pitch, line spacing, and character set.

Try using the **pip** command above and entering CTRL-J (line feed), CTRL-M (carriage return), and CTRL-L (form feed). Those are the basics for printer manipulation. Check your printer manual for others. Be aware that Morrow printers won't print spaces until some other character is typed.

One last point: "Carriage Return" means simply "move the cursor (or print head) all the way left." It doesn't imply "move the cursor down (or feed the paper up), as a typewriter does when you hit RETURN. To simulate that movement on most printers you must send a carriage return and a line feed, or CTRL-J and CTRL-M.



Special Free Offer

SmartKey II speeds up and improves accuracy in computing and is so good that it is now being bundled with Morrow computers. Smartkey II lets you easily reprogram as many upper and lower case keys on your keyboard as you want, even while WordStar, New Word, or any other software is in operation. In a dynamic review of SmartKey II, Stan Ahalt flatly states, "This is probably the most useful software I have ever seen." Peter McWilliams, William Buckley, and others are equally impressed.

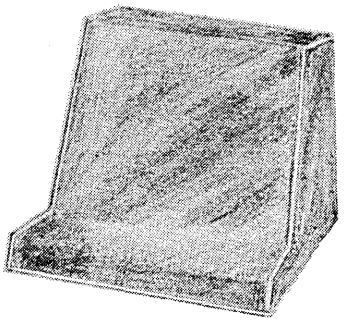
Uses for this powerful, easy to operate program are endless. With SmartKey II you can assign up to 3,750 characters to a single key. Once you have redefined keys, you can put them to work or change them at will. You can also store your "smart key" definitions in a special file and use them later, or make numerous definition files to use with a variety of your favorite programs or projects. Imagine saving complex command codes, boilerplate paragraphs, sentences, proper nouns, inventory numbers, or whatever, and then injecting any of them into your work with the stroke of a single key. This is a must-have, time saving computer program for all MD owners.

SmartKey II has a little known super companion program called SmartPrint II. SmartPrint II retails at $49.95. SmartPrint lets you give single-stroke commands to make your dot matrix printer produce italics, greek characters, graphic symbols, boldface, underlining, extended typefaces, accent marks, and much more. SmartKey II retails at $89.95. Now, for a limited time only, Central's **combination pack** of SmartKey II and SmartPrint II is only **$79.** In addition, as a bonus, with your purchase you will receive a **free copy** of Paul Golding's book, *Screen Smarts, The Computer Tamer's Guide*. This book is a $15.95 value. It tells how Mr. Golding, a professional writer, uses SmartKey II to turn his humble computer into a supercharged dedicated word processor. Please don't delay, this offer may not be repeated. Order today to get SmartKey II, SmartPrint II, and a free copy of *Screen Smarts, The Computer Tamer's Guide*, fast.

Warning: SmartKey II will not work with MDT20 terminals. Order SmartKey II and SmartPrint II for MD2, MD3, and, now, MD11 computers. SmartKey comes with a complete step-by-step manual. Makes similar programs look dumb.

Introducing A Classic Form Fitting Morrow Cover

At last, the classic MD dust cover you'll be proud to own and use. This first rate computer cover is made from a premium, lint free, static free, washable, free breathing, and fade resistant sailcloth. It comes in a rich looking Navy blue or Sand. The Navy cover has a smart contrasting silver gray piping and trim that adds a superior finished look. Not to be outdone, the Sand cover is handsomely finished in a rich chocolate piping and trim.



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NEW

Morrow owners are talking about ...

The Compleat Morrow Micro Decision, A Guide to the MD 1, 2, 3, and 11 published by the Computer Book Group of the Reston Publishing Company is hot off the presses. This book is causing quite a stir among new and veteran Morrow owners. It's no wonder too. The author, Steven Frankel, is an independent consultant that has written an entire line of computer books, and as such is uniquely qualified to thoroughly explore and explain the architecture, capabilities, and uses of Morrow computers. This fully illustrated book takes you on a grand tour of the ins and outs of the operation of Morrow computers. Long time Morrow owners say how much they appreciate the informative treatment Steven Frankel has given their computer.

The Compleat Morrow Micro Decision is the first serious book on the Morrow computer line released by a major publishing house. The more than 220 fact-filled pages of this book are jam packed with accurate information and technical advice that make it an invaluable tool for Morrow owners. Hard facts explored here include reviews and advice on the selection of super productive software that will enhance the operation of your Morrow. If you want to learn more about your Morrow computer and how to get real computing power from it, put this book on your desk. It pulls no punches. Retail price of this book is $16.95. Our current price is **$15.** Please call or write today to order your copy of this informative book today. Satisfaction guaranteed or your money back.

"Spikes and surges can be the greatest threat to your computer outside a 4 year old child with a jelly sandwich aimed for the disk drive slot."

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Unique Panamax EMI/RFI noise filters provide protection in common and transverse mode. Essential for modem communications, multi-user stations, etc.
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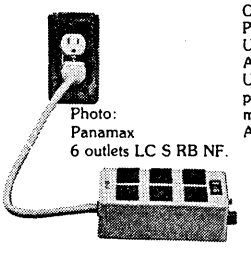

Photo: Panamax 6 outlets LC S RB NF.

The fact is: "Line filtering will protect your computer...from power surges or other undesirable occurrences from the power source." Surge protection will help your Morrow provide years of trouble-free service. Also, if you plan to use your Morrow to access information by modem, you must have a reliable high frequency noise (EMI/RFI) suppressor to insure against data loss and scrambling.

"Power line-associated problems are estimated to cause nearly 70 to 90 percent of the malfunctions in the IBM PC."

"Overvoltage can be fatal to both data and hardware alike."
P.C. Magazine, March 1983

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Check our regular low prices. Try the Panamax of your choice for 15 days. Receive the "Panamax Challenge Certificate" with your purchase. If not completely satisfied with your purchase, return for immediate full refund. Your Morrow deserves Panamax protection, the best there is. Order today.

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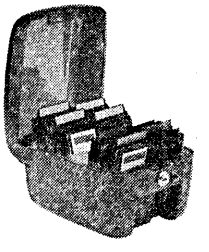

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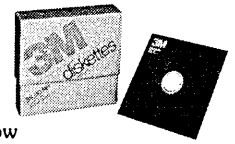

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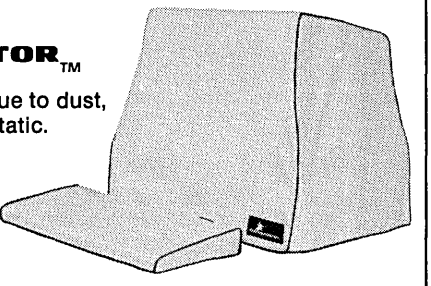

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SPEEDING UP YOUR COMPUTER

by Stan Ahalt

Recently, Jerome S. from New York wrote to ask me about an experiment he tried. Noting that a "newer" version of the Z80A CPU (which is the heart of all of our MD's--the Central Processing Unit) is available, he decided to try it. The new version is called the Z80B, and it is the "6 Mhz version" (as compared to the 4 Mhz version we all have). Jerome dutifully installed the new chip, and while everything ran just fine, he noted no speed improvement at all.

Well, the Z80B is rated to run at a maximum of 6 Mhz. This means that it will run at 6 Mhz if it is driven by a 6 Mhz clock. However, our machines run at a clock rate of 4 Mhz.

Now, even if you changed the clock rate of your computer, which is controlled by a quartz crystal circuit built into your machine, you still wouldn't necessarily get a speed improvement. There are other sections of your computer which are controlled by the same clock, and some of them may not be able to operate at the increased clock rate.

Let's look at your crystal circuit--the one which produces the clock. It's just like the clock which hangs on the wall, only much faster. Every time the second hand "clicks," another event occurs. For instance, on one click the CPU might tell the memory which information it wants. On the next click, the memory hands the information over. Subsequent clicks might see the CPU adding the information you just got out of memory to other information which it had previously fetched from the memory. Thus, when you write "A = A + B" in Basic, a number of smaller events occur. "A" is fetched, then "B"; then they are added together, and the result is placed back in "A," which is really some memory location.

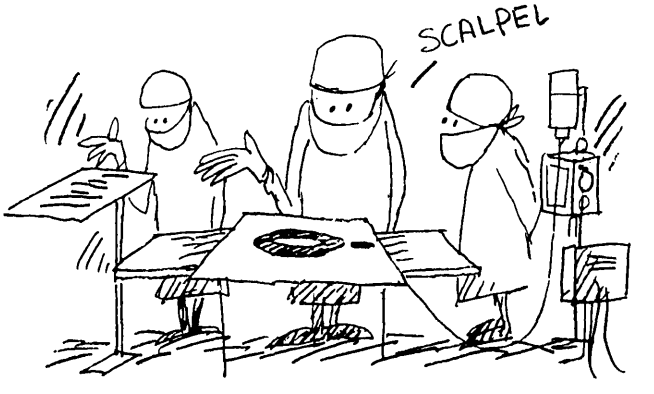
While I've probably succeeded in confusing everyone, I think you can see the main point. Everything in your computer must act in ordered sequence; that is, something must happen at every clock tick.

There's the rub. If you installed the newer Z80B CPU and changed your crystal circuit so that it produced clock ticks at a rate of 6 Million ticks per second (6 Mhz), instead of the standard 4 Million ticks per second, there would still be no guarantee that the memory would be able to respond and provide the required information before the next clock tick. Then havoc would reign, the CPU would assume that the memory had handed over the goods, when in fact the memory had handed over garbage. To insure that all of the circuits in your computer are able to respond at the faster rate would require a lot of work on the part of a skilled technician or engineer.

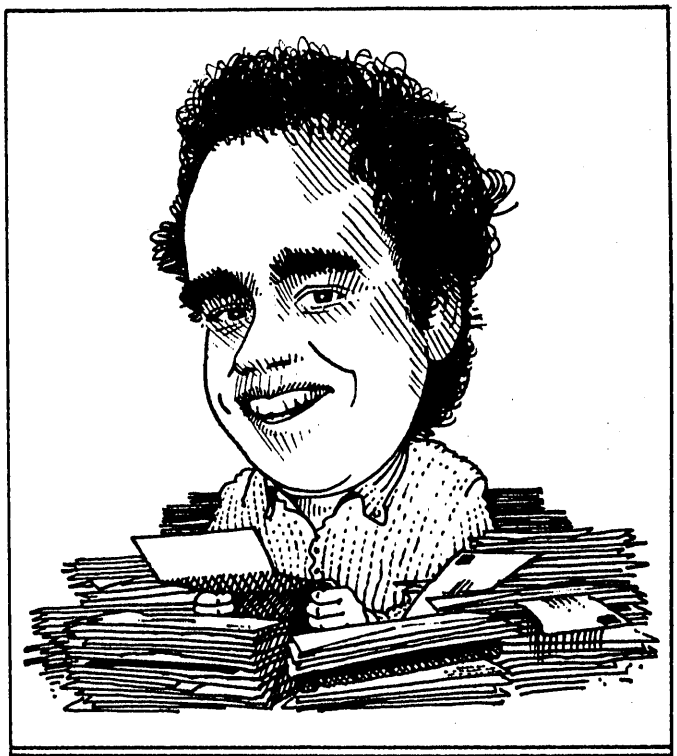
Now that I've told you why it's so hard to predict if a computer will run at an increased speed, let me further confuse the issue. Many of the do-it-yourself computer boards on the market (such as the Big Board) have been "souped-up" by their owners. They used a much more practical technique to determine if it would work. They tried it. They replaced their Z80A's with Z80B's and changed the quartz crystal which determines what the clock rate is. If everything runs, fine. If not, then the next things that gets replaced are the memory chips, i.e., they put in faster memory. This continues until you run out of money or you are successful. In some cases, all that is required is that the quartz crystal be replaced. Which brings me to my last topic.

What is the difference between a 6Mhz Z80B and the 4Mhz Z80A that we all have in our MD's? In many cases, nothing. Typically, manufacturers test each of the circuits they build; if a circuit runs at 6Mhz, it is labeled a Z80B. If it doesn't, then it is tested at 4Mhz; if it passes this test, it is labeled a Z80A. If it doesn't pass either test, it is probably thrown away! So in many cases, the Z80A you have in your MD will run at 5Mhz, but not at 6Mhz. But you'll never know.

...unless, of course, some enterprising soul out there has already "hot-rodded" his/her MD. If you have, write us at MOR!



Bob Johnson, Talking Pictures



DAVID'S Q & A COLUMN

by David Block, Morrow Inc.

With this issue, we have a new group of Morrow owners joining us. Some of the older members may think they are a bit peculiar. After all, they don't care about how to get more use out of their Micro Decision. Words we're all used to like STAT, PIP, and even CP/M mean nothing to them. There's really nothing strange about them, however; they are just...Pivot owners. What's Pivot? Those of you who don't know can take a look at the June '84 issue of MOR (Vol. 1, #2, p. 41) and at the article "Pivot, Anyone?" on page 50 of this issue.

In future columns, I'll try to divide my topics fairly between Pivot and the Micro Decisions. But what will guide me the most in how I break up my column will be the actual questions I get from you. If you don't have any specific questions but would like to see a column devoted to a specific topic, drop me a line.

And now for something completely different... letters.

Dear David,

I used to use the Morrow Bulletin Board, but several months ago it quit working. I noticed in the last issue of MOR that it is temporarily out of order. I had found it a great service, since living in the middle of Wyoming, I find it a bit hard to make it to the nearest users group meetings (in Montana). When do you think it will be up again?

Wondering in Wyoming

Dear Wondering,

When was the last time you tried the BBS? As of mid-November, it's up and running. You'll find it much easier to use and much more powerful. The editor has been changed, and many functions have been added, including the ability to download files (if you have a way of receiving "XMODEM" transfers). When selecting files to be downloaded, you may choose from a number of different categories. Both CP/M and MS-DOS programs are available for downloading.

The number for the Bulletin Board System is: (415)632-1951. It works with 300 or 1200 baud modems.

P.S. My thanks to Larry Hamelin of Morrow for helping to get the BBS up again.

Dear David,

I saw an article about Pivot in Byte Magazine, and it said that it came with a built-in Modem. The article didn't say whether it was 300 or 1200 Baud. Which is it?

The Faster the Better

Dear Faster,

The built-in Modem is 300 Baud only. Because 1200 Baud Modems are more complicated, the cost of building one into the Pivot goes up substantially. It is possible to use a 1200 Baud Modem externally by connecting it to the serial port.

Dear David,

Is there a program available that will allow me to change the Baud rate, number of data bits, etc. for the auxiliary port of my MD5-E? I need to use 7 data bits when I am communicating with the University mainframe, and the MD5-E uses 8 data bits.

7 is Enough

Dear 7,

Check out the Morrow Bulletin Board System. There should be a file on it that you can download to change the auxiliary port settings.

Dear David,

I use an IBM PC-XT at work, and an MD11 at home. In your manual, you emphasize the importance of "Parking" the hard disk any time you turn off the machine. IBM doesn't say anything about parking the hard disk on the XT. What's the difference between how the XT works and the MD11?

Parking Ticket

Dear Parking,

There is no difference between the XT and MD11 when it comes to what the disk drives do when they turn them off. The reason we supplied the PARK program, and make a big deal out of it, is that it provides some extra protection against power glitches. It's like medical insurance: You hope you never have to use it, but when you need it, you're glad you have it.

WORDSTAR EMERGENCY TREATMENT

by Sypko Andreae

Welcome to the emergency room. WordStar accidents happen every day, and this is where we treat them. You've never had a WordStar accident, you say? Well, read on anyway, because it could even happen to you. Let's take a look at three WordStar accidents and what can be done to repair the damage.

But first a word on accident prevention and on some good habits to develop during editing that will help you recover from disaster:

- o Always have WordStar in A: and text files in B:
- o Always have a few "nearly empty" rescue floppies at hand
- o Do ^KS often (works as an early disaster detector)
- o Check often for space left on B: (R and A:XDIR)
- o Never let your WordStar files grow past 17k Bytes

Sorry, wrong disk.

Suppose one day you are going to write your first love letter on your trusty Morrow machine. You put the WS disk in the A: drive, your text file floppy in B: and boot up. The WS no-file menu comes up. You give the D command and start writing LOVELETR.ONE.

In the excitement of creating your beautiful prose, you forget to do ^KS regularly. After hours of loving labor, you complete your epistle with a satisfied sigh and give the ^KD command, thinking that WS will write your file on B: as it used to do. You watch horrified as CP/M muscles its way onto the screen with a stern message saying:

```
Disk error in drive A: Write protected.
Type R to try again, A to abort, I to ignore.
```

This is what happened: When you started up WS, it logged itself onto A: by default. You forgot to log onto B: (L on the no-file menu). Someone once taught you to be careful with your WS disk and put a write-protect tab on it so you cannot write over it. There is nowhere for your LOVELETR.ONE to go! What now?

This is what you do:

- o Calm down by taking a few deep breaths
- o Remove your WS disk from A:, put a rescue floppy in A:
- o Type R (to try again) and CP/M will let WS try again

The A: drive grinds, and now you see:

```
CP/M error: Drive A: read only.
A>
```

Have we lost WordStar? Yes, we have, but don't despair. Your file is alive and well on your rescue floppy. To check it out, put the rescue floppy in B: and WordStar in A:, boot up and run WS. Now log onto the B: drive and, look, there it is: LOVELETR.$$$. A highly inappropriate filetype for a love letter, don't you think? Let's rename it quick with the non-file menu E command to its original name LOVELETR.ONE. Use command D to inspect it. All there? Good. You have won the battle. But wouldn't it be nice if WS just logged onto B: by itself? Read on.

Automatic log onto B: drive.

You can patch your WordStar Vers. 3.0 to make it log onto B: automatically at start up. Follow the recipe below, found in an undated copy of the DVMUG newsletter by an unknown writer.

We are now going to do surgery on WordStar with the program DDT. Be sure to make a backup copy of your WS working diskette. This will serve as the experimental subject. (Do not experiment on your working diskette.) Now put your CP/M working disk in A: and, after you have removed the write-protection tab, put your (copied) WS disk in B:. Start DDT as indicated below. The underlined sections are what you type in in response to A> and DDT. All your entries are terminated by depressing the <RETURN> key. The information in [ ]'s is for clarification.

```
A>DDT B:WS.COM
DDT VERS. 2.2
NEXT PC
3F00 0100
-A02A4          [A zero 2A4]
02A4 JMP 0340   [JMP zero 34 zero]
02A7 .
-A0340          [A zero 34 zero]
340 MVI C,0E    [zero E]
342 MVI E,01    [zero 1]
344 CALL 0005   [zero zero zero 5]
347 RET
348 .
-G0             [G zero]
A>SAVE 63 B:WS.COM
```

Now your WordStar program will have been properly modified. Try it out. Put the WS disk in A: and start

it up. WordStar is now counting on the presence of a floppy in B:. If you forget to load a B: floppy, CP/M will get upset and let you know. In that case, put your text file floppy in B:, type R (to try again) and all will be well. You will learn to love this log-onto-B: feature.

In case you bungled up the conversation with DDT, just start over again: make another backup copy of your WS working floppy, and proceed as explained above.

Sorry, your disk is full.

This time you are properly logged onto B:, but you have not made regular checks on the space that is left (by using the R command in no-file menu and running A:XDIR, for instance). You are happily typing away, and at last it is time for a ^KD to store the file. But WordStar protests with:

*** ERROR 12: Disk FULL; press ESCAPE ***

Praying that your file has not grown past the 17 kBytes safety limit, you reach for your "nearly empty" rescue floppy and take at least three deep breaths. Take your time!

- o Block the whole text from beginning to end with ^KB and ^KK.
- o Now do ^KW. WordStar asks (and you respond):

NAME OF FILE TO WRITE MARKED TEXT ON:
C:LOVELETR.ONE

The C: drive? You didn't know you had one? It is your "virtual" drive--that splendid design feature found only in Morrow computers that is now going to save your relationship. It says:

Your bottom drive is being reassigned drive C:
Exchange diskettes and push [RETURN]

Sounds familiar? Now remove your WordStar disk from A:, replace it with your rescue floppy and hit return. The A: drive light shows activity. That is your file being saved again! Tell WordStar to forget about its textbuffer with ^KQ. But where is WordStar? Another polite message appears on the screen:

Your bottom drive is being re-assigned drive A:
Exchange diskettes and push [RETURN]

Now you put the WordStar disk back in A:. Drive C: has virtually left the scene. Now prove to yourself that you've done it. Start WS up and inspect the file. See? It really works.

Kicked out of WS.

Now suppose all your previous procedures didn't go that smoothly. Perhaps you forgot to take your deep breaths. When your disk was full, you might have tried to exchange your full disk in B: with a rescue floppy and then typed ^KD again. This is enough to make CP/M really mad, and it says:

CP/M error: Drive B: read only
B>

But you could swear there was no write-protect tab on your rescue floppy. What does CP/M mean: "read only"? Well, this is CP/M's obscure way of telling you that it just can't tolerate your switching floppies without using the proper ^C to give CP/M a chance to look around and see what floppies are where. Alas, this time there is no LOVELETR.$$$ on the floppy in B:, and you killed WordStar to boot. Did you ever bungle this one....

But you have one more chance! Remember, even though WordStar is dead, its text buffer with your precious text is still in the RAM memory of your computer. Whatever you do, don't turn it off!

It is now time for an autopsy. We'll neatly cut your text free from WordStar's dead body. The following is adapted from George Woo's article in the BAMDUA newsletter of December 1983, pages 4 and 5. Here is what you do: Put your CP/M working disk in A: and boot it up. Put a rescue floppy in B:. Now you run DDT again and converse with it as follows:

```
A>DDT
DDT VERS. 2.2
-D7849      [Does this dump look like your text?
             Good!]

-M7849,BAFF,100    [This moves your text to
                    address 100]

-D100       [Does this dump look like your text?
             Good!]

-^C         [Leave DDT for CP/M]

A>SAVE 67 B:LOVELETR.ONE  [Save text in the
                           file]
```

Inspect your recovered text with WordStar. You might find some unwanted trash beyond the end of your writing. Just use WordStar to clean it up. Sit back and rejoice.

Spend half an hour simulating these emergencies to prove to yourself that you can handle them. You'll be surprised how easy it is once you know the steps. And you can do all this without understanding exactly what's going on.

Remember, these tricks work only for text that has not grown beyond 17k Bytes. That is the maximum capacity of WordStar's internal text buffer, and these treatments are based on saving that text buffer. Love letters of more than 17k Bytes are too long anyway. Good luck to you.

CUSTOMIZING WORDSTAR'S TERMINAL DEFAULTS

by Bill Lamp'l

Dear Editor:

Here is an article for your consideration. It is intended to be as non-technical as possible, and contains information I might have killed for during that first struggling year....

Special thanks to Bob Van Cleef whose writings helped confirm the patch locations.

Regards,

Bill Lamp'l

By now we've all seen lots of great patching projects to help WordStar make beautiful music with our printers. But what about making our lives easier while we're still staring at the CRT screen? Have you ever wished the right margin were set to something different? (Maybe you prefer 12-pitch type.) Would it be nice if INSERT were turned off from the beginning so you wouldn't keep getting those nasty surprises? Are you tired of routinely typing .OP to omit page numbering every time you type a one-page letter? Do you get bored cycling through all those pre-print questions just so you can say Y(es) to "pause for paper change between pages?" (If it weren't for that one change, you could have simply pressed ESC and skipped the questions altogether!) Well, Morrow users, these and many other potential ways to an easier life are just a few short patches away.

This discussion will be confined to Version 3.0 of WordStar, as I get uncomfortable talking about things outside the realm of my actual experience. If you're not sure which version you have, check the title screen when you first call up WordStar.

As all patching articles have stressed, make a BACKUP copy of your WordStar disk, and do all your patching/experimenting on the copy. When you are satisfied that all changes work properly, then you can place the patched version on your working disk.

A word of warning: if you are using a version of WordStar that includes Micro Keys (a program that automates many of the WordStar commands by utilizing the function keys and numeric keypad), do not follow the procedures outlined below because WordStar's installer will chop your program in half. The desired changes can still be made but must be done using editing programs such as DDT or EDFILE.

Now that you have a backup copy and are sure you have the right version of WordStar, begin at the A> prompt by typing INSTWS which will call up the installation program. You will first be asked if you want a first-time installation of WordStar, to which you should answer N for "No." You will then be asked a number of questions about your terminal, printer, etc.; answer U (unchanged) to each question and then Y (yes) when asked for confirmation. Finally you will be asked if the changes to WordStar are complete; answer N and you will drop into WordStar's patcher.

You will now be asked for the location to be changed. Enter one of the hexadecimal "addresses" from the list below for each patch you want to make. For example, the hex address for initializing the left margin is 037F. The software will add H to your entry to indicate it is a hex number. If you prefer, you can get to the same address by entering the "mnemonic" term; in our example you would enter INITLM: (don't forget the colon). In either case you should see something like this:

ADDRESS: 037FH OLD VALUE: 00H NEW VALUE:

Enter any new two-digit HEX value you wish (no need to add the H) and press <RETURN>. That's it--the change is made! If you decide you don't want to change a value, just respond to NEW VALUE: by hitting <RETURN> and the old value will be preserved. In fact, if you simply keep hitting <RETURN> you will slowly advance through the file one hex address at a time.

If you're not used to working with HEX numbers, I suggest you study the conversion charts found in most computer reference books. If you're in a real pinch, the following brief table may contain the values you need to get you started:

Decimal	Hex	Decimal	Hex	Decimal	Hex
0	00	10	0A	55	37
1	01	12	0C	60	3C
2	02	15	0F	65	41
3	03	20	14	66	42
4	04	25	19	70	46
5	05	30	1E	75	4B
6	06	35	23	76	4C
7	07	40	28	80	50
8	08	45	2D	100	64
9	09	50	32	120	78

Now that the preliminaries are out of the way, let's look at some of the patching possibilities:

Mnemonic term	Hex address	Default value	Description & Comments
INITLM:	037F	00	Set left margin; use a value 1 less than actually desired. So 00 = margin set to 1
INITRM:	0380	40	Set right margin; as above set 1 less. Margin of 65 = 40 hex. 4C (77 margin) is about right for 12-pitch (elite) type.
ITHELP:	0360	03	Set the help level. Once you've memorized the WS commands, try setting to 02 to see fewer menus and more work space; 01 and 00 for even less help.
ITITOG:	0362	FF	Set to 00 to start with INSERT turned off. This will probably save you from nasty accidents. It can be turned on when needed with ^V.
ITPOPN:	03D3	00	Omits page numbering when set to FF; the automatic equivalent of typing .OP at the start of every file. Great if you type a lot of 1-pagers like letters. Can always be turned back on when needed with .PN
PODBLK:+3	03CD	00	Set to FF to pause for paper changes during printing. Great if you use single sheets most of the time. Once all the print questions are set the way you want them, you can SKIP them altogether by pressing <ESC> in resonse to the first question.
TRMINI:	0292	00	Set to 01 to clear screen on start-up; you must patch TRMINI:+1 as well.
TRMINI:+1	0293	00	Set to 1A; see TRMINI
TRMUNI:	029B	00	Set to 01 to clear screen on exit; you must also patch TRMUNI:+1 as well.
TRMUNI:+1	029C	00	Set to 1A; see TRMUNI
NONDOC:	0392	00	When set to FF, you will be put directly into NON-DOCUMENT mode if you load WS with a file name (e.g. WS xyz). This is useful to programmers who create a lot of source files.
ITDSDR:	0363	FF	Set to 00 to start out with the directory turned off. It can be turned back on with F at the No File menu or with ^OF during edit.
HZONE:	039A	04	Decrease this value for more hyphenation pauses (i.e. to hyphenate shorter words) when using ^B with hyphen-help on; increase for fewer such pauses.

What does a strange notation such as PODBLK:+3 mean? It means that the actual location to be patched (03CD) is three bytes past PODBLK:. If you would have used PODBLK: (without +3), you would have wound up at the location 03CA. Then you would have had to hit <RETURN> several more times until you advanced in the record to the proper address. You can also arrive directly at the proper location by specifying the hexadecimal address 03CD.

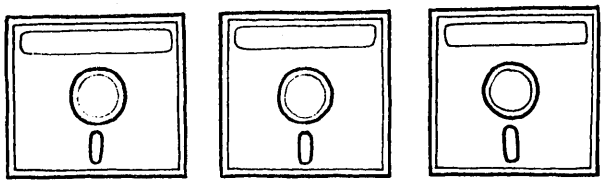
It is also possible to change the default positions of the various toggles. Here's a list of some of them; FF is ON, while 00 is OFF.

Address	Default	Description
0385	FF	Word wrap (^OW)
0386	FF	Right justification (^OJ)
0387	FF	Variable tabs (^OV)
0388	00	Soft hyphen entry (^OE)
0389	FF	Hyphen Help (^OH)
038A	FF	Print control/display (^OD)
038B	FF	Display ruler (^OT)
038C	FF	Dynamic page break
038D	FF	Page break display (^OP)
	Other tidbits:	
038E	01	Line spacing (set 1-9)

037C	0C	Standard character width for daisy wheel printers, expressed as n/120 inch. Default is 12/120 = 1/10 = 10 characters per inch.
037D	0A	Alternate width for daisy wheels (^PA); default is 10/120 = 1/12 = 12 cpi

I hope this article will give you the impetus to plunge ahead and make some of those changes you suspected were possible if only you didn't have to stick your hands in the guts of the program to accomplish it. Take it from someone who just a couple of months ago thought a patch had something to do with cabbage. You too can come out of it alive and and even a little enlightened.

This article is based on the premise that your copy of WordStar should be tailor-made to fit your needs by pre-setting to those values you typically use. After all, WordStar should be working for you, not the other way around!



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Super Script	NO	YES
True Underline	NO	YES
Italics	NO	YES *
Wide Type	NO	YES

Compare Automatic Defaults:

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Lines per Document	55	62
Lines per Page	66	72
Terminal Columns	65	up to 79
Terminal lines / page	55	62
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Omit Page Number	OFF	choice
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N Returns to 12 cpi	
C Printing pause	
Y Underline ON/OFF	
Q/W Italics ON/OFF	*
E/R WideType ON/OFF	

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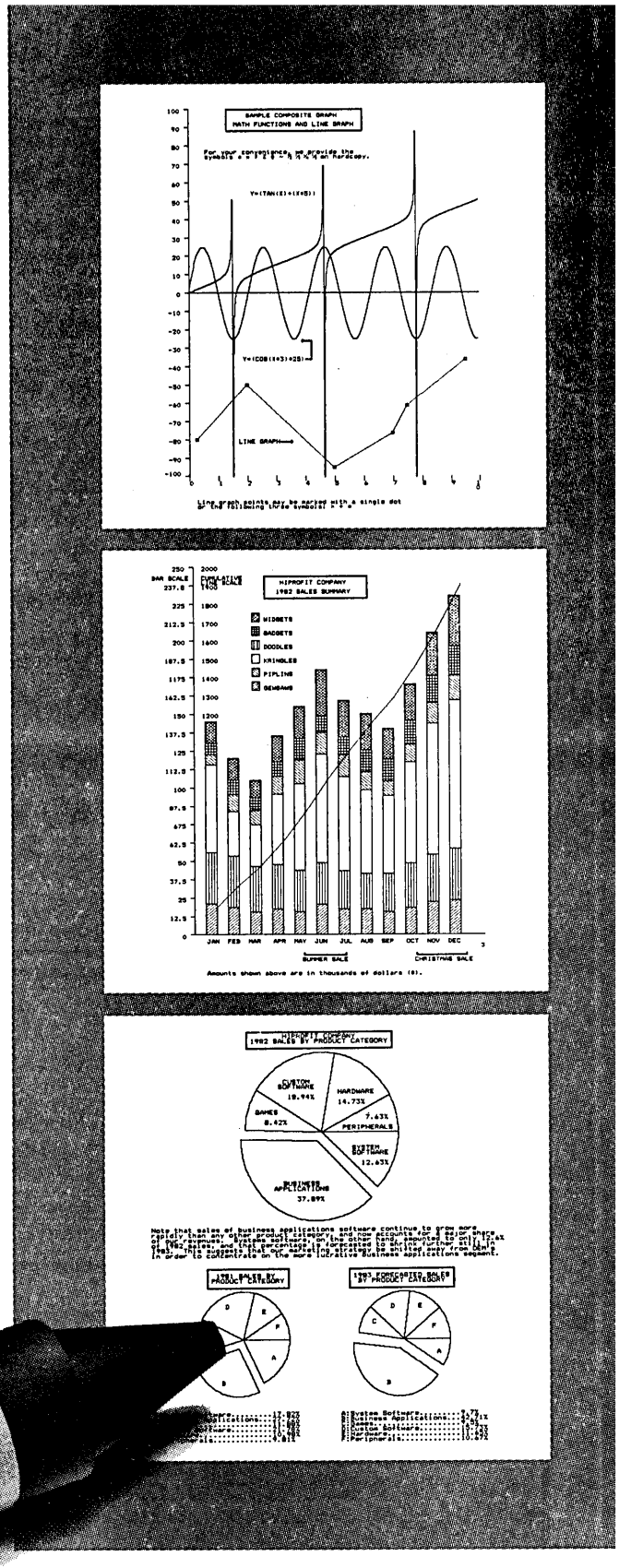

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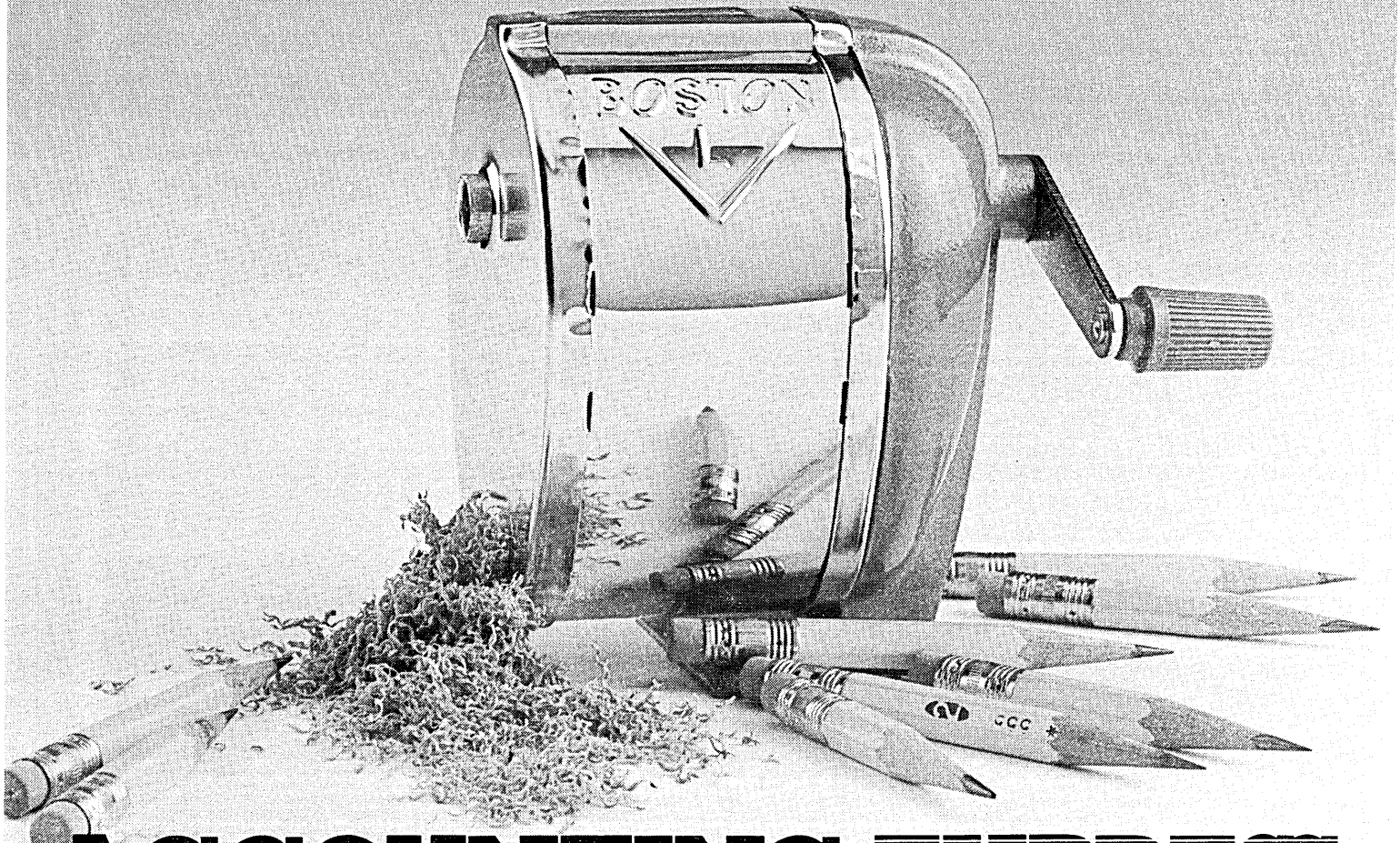

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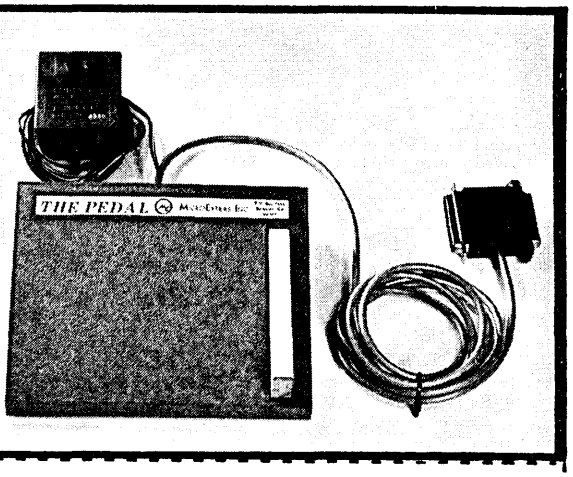

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SPOOL-AWAY WITH PRINTER BUFFERS

by Andy Adler

Few things are more frustrating than to send a large text file from your computer to your printer, and then be unable to do anything until the printer is finished. It reflects a sad fact of micro life: Computers are wondrously fast; printers are comparatively--often laboriously--slow.

The solution is the printer buffer, which frees the computer to do other tasks while the printer is functioning. A buffer receives text from the computer at whatever speed you want, and then sends it to the printer at a speed the printer can accept.

In my case, I send files from my Morrow MD2 (a single-sided, double-density system) at 19,200 baud. That's about 1,900 characters a second. Obviously, this is far too fast for my printer, an Okidata 92 which prints at a top speed of 160 characters a second. But the buffer takes care of this speed incompatibility problem. And it does a whole lot more besides.

Buffers are a must for multi-user, multi-tasking environments, where down-time for a computer is unacceptable. Also, they especially benefit individual users with letter-quality (daisy wheel) printers, which typically print no faster than 55 characters per second.

While I am recommending a hardware printer buffer, there is software, usually called a "print spooler," that performs a similar function. Spoolers are programs that reserve a portion of your computer's memory for printing, allowing you to use the rest of the memory to run some other application. Spoolers, however, are usually meant for computers with large amounts of RAM (random access memory). The 64K of RAM used in CP/M really isn't enough.

Certain text editors (such as WordStar) have a built-in print spooler which allows you to edit one file while another is being printed. But the program often runs slower than normal (especially in block moves), and it may be impossible to do saves while another file is being printed. You may have to re-install WordStar to take advantage of this capability.

With a buffer, you don't have to worry about these things. You can even turn off the computer altogether, and the buffer will control output to the printer all by itself. If you do a lot of printing, the savings in computer wear-and-tear can be considerable.

Most printers, including the Okidata, have a small buffer integrated into their circuitry. These tend to be of limited capacity, however--the Okidata's is 2K--which makes them of little value.

My external buffer, called the "Microfazer," is manufactured by Quadram, a company that's made a name for itself through its line of expansion cards for the IBM PC and compatibles. This buffer comes with several input/output configurations and various amounts of memory.

Such user-selectable configurations can be a big help. My Morrow has a Revision 1 motherboard with two serial ports (one for a terminal, the other for peripherals) but no parallel port. At first I thought I'd have to buy a printer with a serial card--usually $100-$150 more expensive than the parallel version. But for about $50 dollars more than the cost of a serial card for the Okidata, I bought the Quadrum Microfazer set-up for serial input, and with parallel output.

The Microfazer comes standard with 8K worth of memory (about 4.5 pages of double-spaced text), which I easily expanded to 64K (around 36 pages) by plugging in seven more 4164 RAM chips (made by Texas Instruments, Mostek and many others and available mail order for about $5 each).

The parallel-to-parallel version of the Microfazer can be expanded up to 512K--300 pages--though I can't imagine anyone needing that much capacity.

You tend to pay a little more when the input and output of the buffer are different (e.g., serial input, parallel output). The average increase in price tends to be in the 20-30 percent range. Still, it's usually less expensive than modifying your printer's circuitry.

I figure that when I upgrade to a hard-disk MD11 (grin) with a parallel port, my same old Okidata can be plugged directly into its parallel port. And I could still use my buffer with another printer--say a daisy wheel--hooked up to a serial port. Your options multiply with this peripheral!

The Quadram Microfazer is a bare-bones buffer. It can instruct the printer to print out an unlimited number of copies by pressing a button on the front, but it won't do much more. Buffers from other manufacturers (such as Applied Creative Technology's "Optimizer") let you shunt one file in front of another and actually alter files after they've been sent to the buffer. For most single-user applications, I'd say that this additional capacity is overkill. I've never found the need to do considerably more than the Quadram Microfazer

offers, though for some reason you have to keep pressing a button every time you want another copy. I'd prefer this to be accomplished automatically. Also, it would be nice to have a little display showing how many copies have been printed. But these are comparatively small gripes. For the price, I'm more than satisfied.

Hooking the Quadrum Microfazer up is pretty straightforward. You have to remove a few screws, slide out the circuit board, and set three jumper switches inside. One switch must match the baud rate of your computer's printer port. (This can be anywhere from 300 to 19,200 baud.) The other two switches establish the proper "handshaking" signals that let the computer know when the buffer and printer are ready to accept text (either RTS or DTR, for those who are interested).

If all this sounds daunting, relax--the instruction manual explains things nicely. And I've found that the technical people at Quadram give good phone support.

This buffer takes its power right off the Okidata, but an external power supply is provided if your printer's pin-outs can't do this.

As you can tell, I'm an unabashed fan of the printer buffer. If you do any significant amount of printing, it's an investment you won't regret.

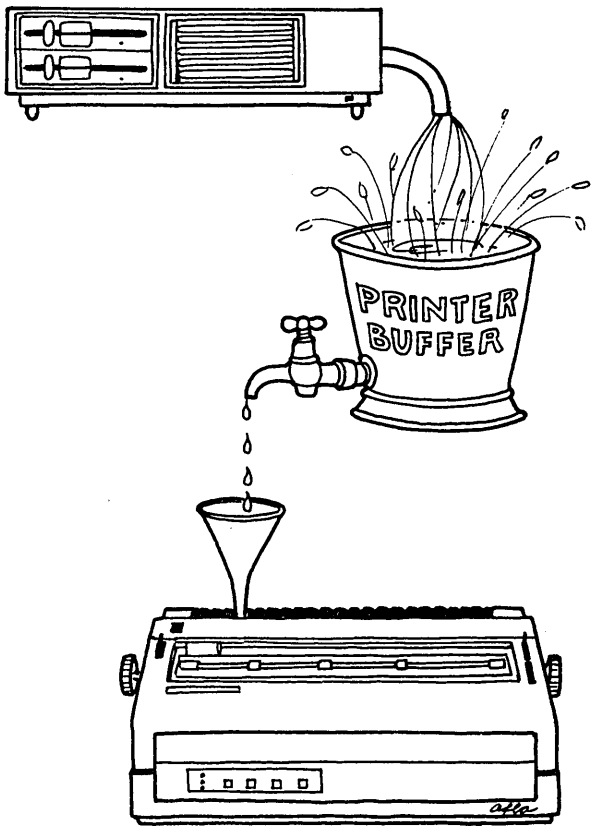
What does it cost? The Quadram Microfazer runs from $169 for 8k up to $1395 for 512k. The Optimizer lists at $499 for 64k. Practical Peripherals offers their Microbuffer for $159 up to $349. (Call them to check capacity.)

Here are the names and addresses of some widely-available buffer manufacturers. (They can usually tell you where to find a local dealer.)

Quadram Corporation (Microfazer)
4357 Park Drive Norcross, GA 30093
(404) 923-6666

Applied Creative Technology, Inc. (Optimizer)
2723 Avenue E. Suite 717 Arlington, TX 76011
Toll-free: (800) 433-5373

Practical Peripherals (Microbuffer)
31245 La Baya Drive Westlake Village, CA 91362
(818) 991-8200



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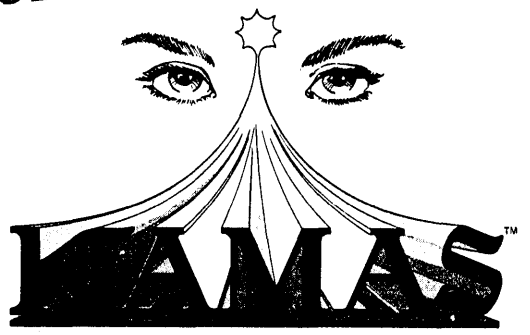

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■ **C/80 3.1.** *Byte* gave this Software Toolworks compiler its "Fastest Execution" rating. Ditto from *Microsystems.* The powerful "C" language implementation is $49.95. Floating point and long arithmetic is an extra $29.95.

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HOW COMPLETE IS COMPLEAT?

— Two Reviews —

BOOK REVIEW

Title:	THE COMPLEAT MORROW MICRO DECISION A Guide to the MD-1, MD-2, MD-3 & MD-11. 230 pp.
Author:	Steven Frankel
Publisher:	Reston Publishing Company Inc. A Prentice-Hall Company Reston, Virginia
Price:	$16.95

[Editor's note: The two reviewers of this book, Bob Hurwich and Andy Adler, are Morrow users with considerable experience. That is a good thing to keep in mind while reading these reviews, since both express a measure of disappointment. Many novice users and certainly many prospective buyers will be relieved and delighted to finally find a book that specifically deals with the Micro Decision family of machines and at a level appropriate to beginners. If--in the eyes of the user--this book becomes obsolete quickly, it may have nicely fulfilled its mission.]

"The more than 220 fact-filled pages of this book are jam-packed with accurate information and technical advice that make it an invaluable tool for Morrow owners. Hard facts explored here include reviews and advice on the selection of super productive software that will enhance the operation of your Morrow."

Reading these words in a two page advertisement in the August issue of Morrow Owners' Review hooked me. I immediately called the advertiser and ordered the book. After giving the nice lady my credit card number, I was informed that the publisher hadn't delivered the books yet, but they were expected within the next month. O.K., I figured, why not, and I told her to go ahead and put my order on the stack with the other back orders. After about six weeks, it finally arrived. I could hardly wait to get home and start reading it!

Well, friends, I should have remembered my mother's advice and not gotten my hopes too high from reading advertisements. Mr. Frankel's book was not the answer to all my dreams. 116 of the 216 pages are devoted to software reviews, most of them either programs which were supplied with the Morrow or which compete with those programs. The author even states that many of them may not be available on Morrow formatted disks. Some 40 pages are devoted to word processing programs and spelling/word-use checking programs (although I don't quite understand how Fancy Font fits in there).

The exceptionally high ratio of software reviews to Morrow specific information isn't my main complaint, though. What I really object to is Mr. Frankel's incompleteness and inaccuracy in dealing with the Morrows. He refers to disk capacity several times but is not consistent with the figures he uses. For example, on page 7 Mr. Frankel tells us that the MD3 has 386K capacity per drive, on page 11 he tells us that it can store 400K per drive, and on page 86 the capacity given is 396K. For the MD2 we are given capacities of 200K, 196K, and 189K. I can't speak for anyone else, but I've never been able to format more than 186K on my MD2 drives. No mention is made at all of Revision 1 Micro Decisions and Revision 2 Micro Decisions. We are led to believe that all Micro Decisions come with the SETUP program. It just ain't so!

Mr. Frankel also seems to be confused about such things as the difference between a printer buffer and a printer spooler. He uses the two terms completely interchangeably. On page 34 we are also told that with a direct connect modem there is no need to dial numbers manually. (If I had waited for my Mura MM-100 direct connect modem to dial, I'd never have connected with anyone.) On page 78 we are told that UNIFORM is presently only available for the Kaypro. It's just not that hard to check with the software publisher to verify the accuracy of this kind of statement. I have had my copy since the early part of 1984, and I bought it after the price went up! Time after time, inaccurate or incomplete statements kept cropping up.

In my opinion, a better title for this book would have been "The Incomplete Guide to the Morrow Micro Decision, a Brief Overview of a Fine Computer and Some of the Software Available For It." This is probably an O.K. book for a total novice who has just bought a brand new Morrow, or who is thinking about buying one, but it falls far short of providing any really useful

information to anyone who has logged more than 25 hours on his machine. A better use of the $16.95 cover price would be to apply it to a Users Group dues or a subscription to Morrow Owners' Review (when it becomes necessary to charge for it) or a donation to Emma Paquin's Morrow Owners Digest.

--Bob Hurwich

How I wish I could report that Steven Frankel, a well-known author of books about CP/M computers, has produced a comprehensive treatment of the MD series. Unfortunately, this book--while a concise introduction to the Morrow, selected peripherals and software, and the CP/M operating system--doesn't go into nearly enough detail about the hardware.

"Compleat," maybe. Complete, no. In an effort to appeal to prospective (and brand new) buyers of an MD1, 2, 3 or 11, he covers too much ground too quickly.

The book is divided into two principal sections. Part I, "Getting Off the Ground," begins with a concise history of George Morrow and the low-end CP/M microcomputer industry. Several main features of the Micro Decision line are discussed (including disk drives, terminals and input/output ports), and there is advice on recommended computer furniture, modems and printers, and a general discussion of CP/M for the novice.

Morrow-specific topics, such as using the supplied utility programs, often duplicate what's available through the "Co-Pilot" menus and Morrow-supplied manual. But there is an excellent introduction to the MD11 and the file organization of a hard disk.

Part II surveys popular software--both commercial and public-domain--that will run on the MD series. This covers word processing and spelling checkers, CP/M enhancements, communications programs, spreadsheets, and accounting and database management programs. Finally, there is advice on how to get free programs, join a users group, and generally feel more comfortable in the micro community.

Whew. That's enough material for a dozen such volumes--and, indeed, there are excellent (and more comprehensive) sources of this information elsewhere. But what insights does Frankel provide about the Micro Decision that can't be conveniently found somewhere else?

There are easily-digested explanations of common error messages and of the utility programs provided by Morrow's menu-driven CP/M front end. In his discussion of the MD's "virtual drive" feature--an example of intelligent hardware design that separates a Morrow from a Kaypro or Osborne--Frankel uses an excellent, real-life example (coping with the dreaded "DISK FULL" message in WordStar) to explain how you can use virtual drive to recover gracefully. Nice going.

Non-technically minded users will appreciate Frankel's hand-holding approach. His writing style is informal, almost conversational, and potentially confusing language is adequately explained. Illustrations and diagrams are few, but smoothly integrated into the text.

There are occasional errors to look out for, however. Some, like calling the MDT 60 terminal the MD 60, can probably be attributed to poor proofreading. Others are more serious, such as saying that the MDs can interface to a terminal or a peripheral at 19,200 baud when Rev. 2 machines actually have a clock defect that limits them to 9,600 baud. Several references (especially to available software, such as Uniform) are already outdated. And he doesn't even mention Rev. 1 MDs--the early Morrows without a parallel port. This is fine for new buyers, but owners of the older MD1, 2 or 3 might get confused at references to configuring the serial (terminal) port with the SETUP program, which is only for Rev. 2 machines.

The bottom line, so to speak? If you're a prospective, non-technical Morrow buyer, or still feel uncomfortable with the Micro Decision's basics and find the Morrow manual impossibly oblique, then The Compleat Morrow Micro Decision is worth a look. More experienced users might just as well save their money.

--Andy Adler

PIVOT, ANYONE?

Morrow began shipments in October '84 of its Pivot portable computer, a ten pound battery operated system that runs many popular IBM PC programs, such as Lotus 1,2,3. The initial production units are dual floppy models with 256K bytes of RAM memory, priced at $2895 retail.

A dual floppy version with 640K of RAM will be available in mid-November '84 at $3695, and a single disk drive 128K version will begin shipping in January '85 at $1995.

Besides the Pivot's originally announced standard features--clock, built-in 300-baud modem, four-function calculator, and word-processing software--the system now includes several previously unannounced additional features. A personal appointment scheduler allows the user to enter appointments for any date, setting an alarm that will remind him of the appointment five minutes before it begins. And a personal phone directory and auto-dialer software stores and dials more than 100 telephone numbers.

For users interested in high-speed performance, the 640K, two-drive version will incorporate a RAM-disk feature in which ROM-based software permits the user to have part of his RAM memory appear to the system as if it were floppy-disk memory.

Pivot options include a rechargeable battery which provides five hours of additional power ($79), 128K memory expansion ($399), 512K memory expansion ($1,299), factory-installed disk drive ($549), Cordura nylon carrying case ($69), and leather carrying case ($129).

Other planned options are a battery-operated printer and an acoustic coupler.

The 13 x 5.6 x 9.5-inch unit has a 16-line x 80-column LCD display with 480 x 128-pixel bit-mapped graphics and a 25-line virtual screen. Its keyboard has 63 programmable keys, 10 membrane function keys, and a 22-key calculator overlay.

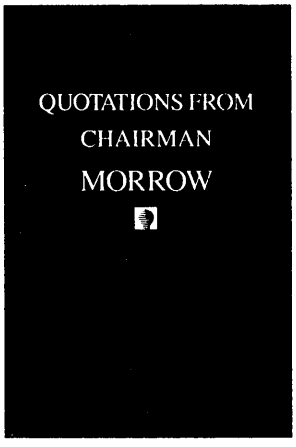
Pivot features an IBM PC-compatible parallel port, an RS232C serial port with programmable baud rates from 300 to 19.2K baud, and an RJ11C port to connect the built-in modem to ordinary telephone lines. The system's double-sided, double-density 5-1/4-inch floppy drives use IBM PC nine-sector format and store up to 360K bytes (formatted) each.

Morrow's Pivot, first announced in May '84, is a full-featured 16-bit microcomputer system which is based on the low-powered CMOS 80C86 microprocessor and uses the industry-standard MS-DOS 2.11 operating system.

Morrow Collectibles

Limited Edition Book & Poster Now Available For Morrow Owners!

"Quotations from Chairman Morrow," George's little red book full of over one hundred pithy and acerbic observations on the microcomputer business was the insider hit of COMDEX. A limited number of copies are available to Morrow owners for $6.95 each.



"Morrow" poster designed and printed by the noted California artist David Lance Goines. Mr. Goines' work is in the permanent collections of the Museum of Modern Art, The Smithsonian, and numerous public and private institutions. The poster illustrates the fact that "Computers send us all back to school." A limited number of posters are available to Morrow owners for $20.00 each.

I want to order _____ books ($6.95 each)
I want to order _____ posters ($20.00 each)
Prices include all shipping and handling charges. California residents please include state sales tax. Make checks out to Morrow, and send them to: Morrow Collectibles, Post Office Box 5755, San Leandro, California 94577-0557.

SOUL OF CP/M

BOOK REVIEW

Title:	SOUL OF CP/M 391 pp.
Author:	Mitchell Waite and Robert Lafore
Publisher:	Howard W. Sams & Co., Inc. 1300 West 62nd Street P.O. Box 7092 Indianpolis, IN 46206
Price:	$18.95

One drawback to living in the country is the absence of MUG's. While membership at a distance is better than no membership at all, the kind of support and training that would be available by directly participating in a users group is, at best, rare. Of course, one of the nicer things about living in the boondocks is that you can scream as loudly as you like and no one will call the cops. Why scream? Why not?...when you have to deal with such incredible publications as Digital Research's CP/M manual, and there's nobody around to help.

Somebody neglected to include a bottle of aspirin with the Digital Research CP/M manual packed with my MD3. Though I can now PIP with parameters, STAT my CON and assign my PUN with the best of them, as well as being able to faithfully SUBMIT batches of the type "ufn parm#1...parm#n," and so on, it hasn't been easy. And I despaired of ever finding out how to count to sixteen on ten fingers, much less write a program in assembly language that would actually do what it was supposed to do.

If any of this sounds familiar, you might save the price of aspirin by trying another book on CP/M. Look for the one with a lurid purple cover and an equally lurid name: Soul of CP/M, by Mitchell Waite and Robert Lafore of the "Waite Group," a San Rafael, California, producer of books on personal computing.

A manual for the compleat hexadecimal idiot, it begins with a brief chapter describing the architecture of CP/M in plain American language. Then you are led through the twelve console system calls while you write programs using them. By the end of Chapter Four, you've used most of the system instructions and you've written source code in an ASM file, assembled it, debugged it with DDT, used the SUBMIT utility to make everything smooth and easy, created for yourself a COM file that returns the hex equivalent of any decimal number you enter, and you have begun to wonder why you ever thought this was difficult.

You can go into it as deeply as you want. Skim it for an overview of how your operating system does its thing or take it step by step until you really get it. You are shown the how and why of disk system calls, the disk directory, wildcards, interfacing with BASIC and other high level languages, modifying BIOS for a printer driver or different control characters, etc.

The appendices, too, are valuable. There's an excellent discussion of binary and hexidecimal notation, a series of utility programs you can assemble and put to use, neatly organized summaries of BDOS system calls, 8080 instructions and assembler directives, and plenty of tables to browse in.

The informal, conversational style is enthusiastic--sometimes to the point of being silly--as if the book were written for somebody who's intimidated by the arcane mystery of assembly language. (Hey! That's me!) There are even a few marginally humorous cartoons thrown in to help you keep your perspective. It's nicely organized in a clear, readable format with colored boxes around descriptions of system calls and instructions, and analog diagrams and flowcharts that show you how the programs are structured.

And the nicest thing: It all works. When you type in a program and run it, the program does exactly what the book says it will do. There are no typos, no unmentioned bugs, no unpleasant surprises. The authors have found that all-too-rare medium in computer documentation that blends mastery of a technical subject and the ability to communicate it.

Experienced programmers will, of course, find Soul of CP/M too elementary. Other books on the market may be more complete (Programming the Z80, by Rodney Zaks, Sybex,Inc., comes to mind). But if you're new to CP/M, have no technical orientation, haven't the time for classes, want to make your BASIC or Pascal programs more sophisticated, or are far from human support in your efforts to understand how your machine operates, Soul of CP/M is for you.

It has certainly made things easier for me. There are a lot fewer blood-curdling screams shattering the rural atmosphere. There would be none if only I could get Pearl to work....

--George Burmeyer

MORROW USERS GROUPS

Here is a new listing of Morrow Users Groups (MUGs). Of course the list is never up-to-date nor is it complete. New groups pop up every month and most of the time we hear about them, but not always. If you hear of a new group being formed, and especially if you are starting a new group, please drop us a note by US or MCI Mail. (We are MREVIEW.)

We decided to list only the groups that are active--that is, they do at least one of the following: they organize regular meetings, publish a local newsletter, hold classes or maintain a software library. The address is a mailing address and not a meeting location. Call or write your favorite local MUG for information on how to join and where and when they meet.

To make it easy to locate a group near you this list is sorted by zip code.

C.M.D.U.G.
Connecticut Micro Decision UG
773 Dixwell Ave. / P.O. Box 5
New Haven, CT 06511
Phone: (203) 387-1660
Contact: Dave Mintie

The Micro Computer Center
7690 Belair Rd.
Baltimore, MD 21206
Phone: (301) 668-2600
Contact: Tim Evans

Micro Decision UG of Washington D.C.
P.O. Box 832
Arlington, VA 22216
Phone:
Contact: Robin Grimes

GMUG/LMUG (Greensboro/Lynchburg)
P.O. Box (Drawer) 18724
Greensboro, NC 27419
Phone: (919) 272-8399
Contact: Kenn Melton

MUG Detroit
13825 Haverhill Court
Southgate, MI 48195
Phone: (313) 283-3016
Contact: Thomas C. Musolf

Central Iowa Morrow Users Group
Rural Route Four
Indianola, IA 50125
Phone: (515) 961-6406
Contact: Ralph Wallio

MAMUG, Milwaukee Area MUG
c/o Computer Commuter
183 E. Wisconsin Ave.
Oconomowoc, WI 53066
Phone: (414) 567-9192
Contact: Brian C. White

MUG.1
P.O. Box 32313
Minneapolis, MI 55432
Phone: (612) 571-4318
Contact: Will Thorp

MSU Micro Computer Users Group
Office of Institutional Research
Montana State University
Bozeman, MT 59717
Phone: (406) 994-2761
Contact: Steve Hample

Chicago MUG
Dept. of Ed., Univ. of Chicago
5835 Kimbark Ave.
Chicago, IL 60637
Phone:
Contact: Roger Anderson

St. Louis MUG
#6 Lawrence Dr.
St Louis, MI 63141
Phone: (314) 362-7560
Contact: John DeMott

Kansas City MUG
5309 E. 103rd St.
Kansas City, MO 64137
Phone: (816) 765-7017
Contact: Donald Trout

Computer Works
136 West Hall
Slidell, LA 70460
Phone: (504) 643-8400
Contact: Per Hansen

Micro Users Group
P.O. Box 14241
Arlington, TX 76094
Phone: (817) 460-4876
Contact: Andrew Seidel

DAMU, Dallas Assoc. of Morrow Users
P.O. Box 12293
Fort Worth, TX 76116
Phone: (817) 451-8674
Contact: Gordon F. Reis

Beverly Hills/West L.A. MUG
1112 S. Holt Ave.
Los Angeles, CA 90035
Phone: (213) 276-0676
Contact: C. Robert Brooks

South Bay Morrow Computer SIG
Jade Computer Company
18503 Hawthorne Blvd.
Torrance, CA 90501
Phone: (213) 532-7257
Contact: Eric Turnquist

LAMUG, Morrow Users of Los Angeles
c/o Robert L. Parker
485 North Sierra Madre Blvd.
Pasadena, CA 91107
Phone: (818) 766-3307
Contact: Brian Leyton

Morrow Computer Special Interest
Group of the Valley Computer Club
P.O. Box 6545
Burbank, CA 91510
Phone: (213) 447-6541
Contact: Emma Paquin

Morrow SIG of San Diego Comp. Soc.
P.O. Box 81444
San Diego, CA 92138
Phone: (619) 270-6519
Contact: Margaret Riggs

Morrow SIG of No. Orange
County Computer Club
P.O. Box 3616
Orange, CA 92655
Phone: (714) 998-8080
Contact: Thor Engstron

MDBUG
Micro Decision Bakersfield UG
1919 Lacey St., #D
Bakersfield, CA 93304
Phone: (805) 832-3682
Contact: Joe O'Bannon

SMUG
Stanford Morrow Users Group
1419 Prince Edward Way
Sunnyvale, CA 94087
Phone: (415) 493-5000
Contact: Ed Gallaher

DVMUG
Diablo Valley Micro Decision UG
2255 Contra Costa Blvd., #100
Pleasant Hill, CA 94523
Phone: (415) 676-9000
Contact: Curt Finney

BAMDUA - Bay Area Micro Decision Users' Association
P.O. Box 5152
Berkeley, CA 94705
Phone: (415) 644-2805
Contact: Sypko Andreae

SCMDUG
Santa Cruz Micro Decision UG
245M Mt. Herman Rd.
Scotts Valley, CA 95066
Phone: (408) 438-5971
Contact: Marianne Russell

CP/Morrow Computer Group
6749 Arabella Way
Sacramento, CA 95831
Phone: (916) 421-6268
Contact: Milton Levison

Chico Morrow Users Group
1819 1/2 Magnolia Ave.
Chico, CA 95926
Phone: (916) 345-3120
Contact: Joan Osterman

Micro Masters
524-C Shower Place
Honolulu, HI 96818
Phone: (808) 833-1338
Contact: Richard C. Witt, Jr.

Seattle MUG
Digital Computer Systems
10357 Stone Ave. N.
Seattle, WA 98133
Phone: (206) 527-0404
Contact: Jack Vaughn

Olympia Morrow Users Group
5108 22nd Ave. SE
Lacey, CA 98503
Phone: (206) 456-4293
Contact: Dave DeBoer

TODAY'S>TO-MORROW Computer Club
1552-2 Kerns Road
Burlington, Ontario L7P3A7, Canada
Phone: (416) 632-3549
Contact: H. Penman Smith

MUG-V
Morrow Users Group of Vancouver
Box 585, 810 West Broadway
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This is an updated list of Remote Bulletin Boards Systems. New Morrow user related ones come into being almost weekly. Rumor has it that there are RBBSs in Washington D.C. and Minneapolis but we don't know their phone numbers. Write MOR if you know of one not listed here.

3/12 = 300 or 1200 baud. 3 = 300 bd. The + in MD2+ means added hard disk.

BAMDUA, Berkeley, CA
3/12 24 hrs MD3 415-654-3882

CMDUG, New Haven, CT
3/12 24 hrs MD3 203-445-5019

COMPUTER CONNECTIONS, Washington DC
3/12 24 hrs MD2+ 202-547-2008

CREIGHTON UNIV. RBBS, Nebraska
3/12 24 hrs MD3 402-280-3023

Dark Chambers RBBS, Bothell, WA
3/12 24 hrs MD3 206-481-6549

Dave Browns's, Studio City, CA
3/12 eves MD?? 818-990-6433

Greensboro MUG, Greensboro, SC
3/12 24 hrs MD11 919-272-7811

LAMUG, Los Angeles, CA
3/12 ev+wknd MD3+ 818-340-9947

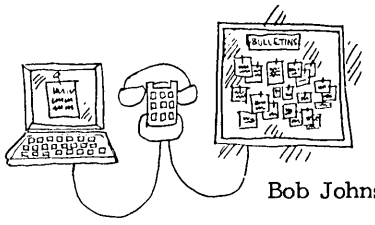
Lynchburg MUG, Lynchburg, VA
3/21 24 hrs MD11 804-846-1880

MORROW RBBS, San Leandro, CA
3/12 24 hrs MD3 415-632-1951

Olympia MUG, Olympia, WA
3/12 24 hrs MD3 206-866-9141

Orangevale RBBS, Fair Oaks, CA
3/12 24 hrs MD?? 916-988-2660

Plainsboro RBBS, Plainsboro, NJ
3/12 24 hrs MD?? 609-799-6399



Bob Johnson, Talking Pictures

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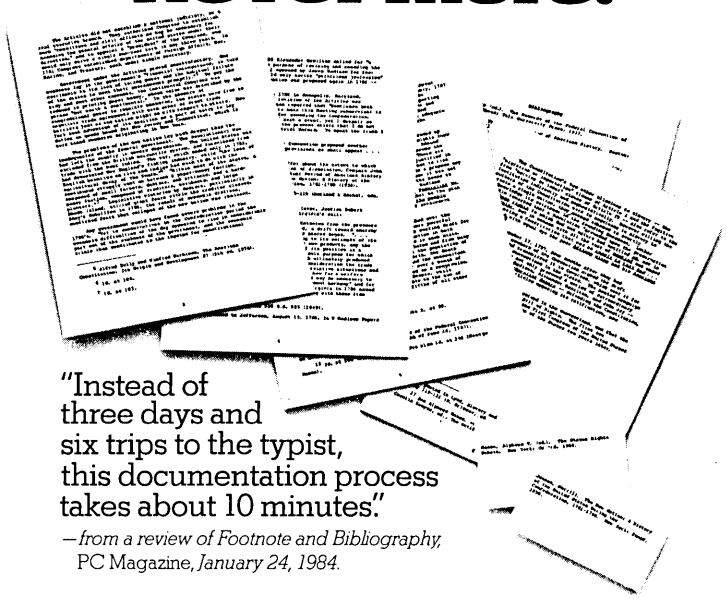

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[1]Op. cit. supra. See also *Interface Age,* March, 1983; *Byte,* April, 1983; *Infoworld,* July 18, 1983; *Desktop Computing,* October, 1983.

[2]Footnote also works with the Newword™ word processor.

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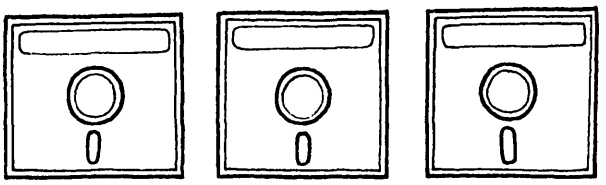

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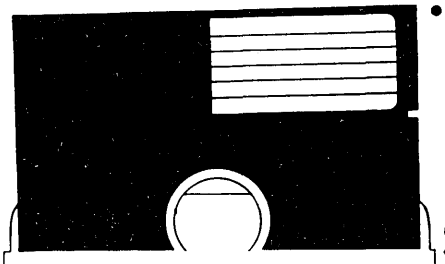

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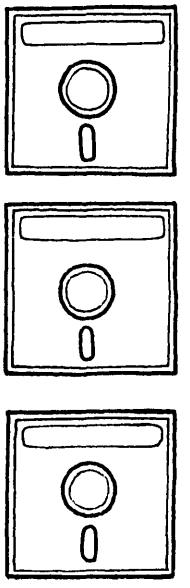

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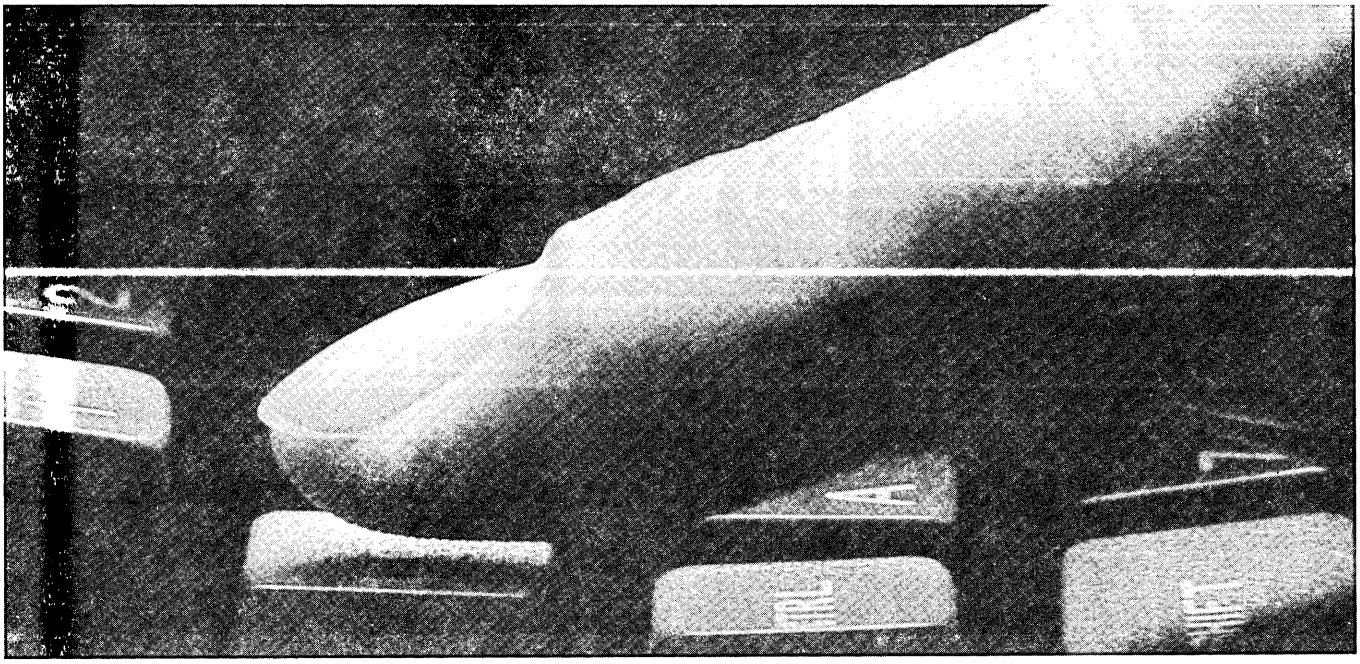

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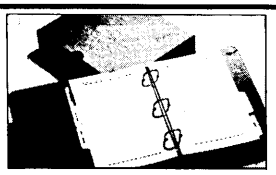

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